

**IN THE UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF OHIO  
EASTERN DIVISION**

**STATE OF OHIO, ex rel.  
DAVE YOST<sup>1</sup>  
OHIO ATTORNEY GENERAL**

**Plaintiff,**

**V.**

**OTTERBEIN UNIVERSITY,**

**and**

**UNITED STATES OF AMERICA  
UNITED STATES DEPARTMENT OF  
DEFENSE, and LLOYD J. AUSTIN III<sup>2</sup>  
in his capacity as SECRETARY OF THE  
DEPARTMENT OF DEFENSE,**

## Defendants.

**CASE NO.: 2:11-cv-508**  
**(consolidated with 2:08-cv-709)**

**Judge MICHAEL H. WATSON**

## CONSENT DECREE AND FINAL JUDGMENT ENTRY

Plaintiff, State of Ohio, by and through Ohio Attorney General Dave Yost, at the written request of the Director of the Ohio Environmental Protection Agency (“Ohio EPA”), filed a Complaint in this action (Doc. 2) on June 10, 2011 against Defendants, Otterbein University and the United States, seeking reimbursement of certain Response Costs pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”), 42 U.S.C. § 9601, *et seq.*, and to enforce Ohio’s solid waste, hazardous waste, and water pollution laws found in R.C. Chapters 3734 and 6111 and rules adopted thereunder (“Complaint”).

WHEREAS, Defendants, Otterbein University and the United States, do not admit any

1 Dave Yost is now the Ohio Attorney General and is substituted pursuant to Fed. R. Civ. P. 25(d) for the former Ohio Attorney General.

<sup>2</sup> Lloyd J. Austin III is now the Secretary of the Department of Defense and is substituted pursuant to Fed. R. Civ. P. 25(d) for the former Secretary.

liability to Plaintiff arising out of the transactions or occurrences alleged in the Complaint, nor do they acknowledge that the release or threatened release of hazardous substance(s) at or from the Site constitutes an imminent and substantial endangerment to the public health or welfare or the environment.

WHEREAS, Ohio EPA approved Otterbein's Remedial Investigation and Feasibility Study, and Ohio EPA then published the final Kilgore Decision Document on August 1, 2018.

WHEREAS, the Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and that implementation of this Consent Decree will expedite the cleanup of the Site and will avoid prolonged and complicated litigation between the Parties, and that this Consent Decree is fair, reasonable, and in the public interest.

THEREFORE, without trial or admission of any issue of law or fact, and upon the consent of the undersigned parties, it is hereby ORDERED, ADJUDGED, and DECREED as follows:

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## **I. STATEMENT OF PURPOSE AND GENERAL PROVISIONS**

1. In entering into this Consent Decree, the mutual objectives of the State of Ohio and the Defendants include (1) completion of a Remedial Design/Remedial Action (“RD/RA”) to

implement the remedy set forth in the Decision Document; (2) the reimbursement of certain Response Costs incurred and to be incurred by the State of Ohio; and (3) the resolution of all claims asserted by Otterbein University against the United States concerning past response costs and future response costs to be incurred by Otterbein University through the completion of the RD/RA work required by this Consent Decree; and (4) the resolution of the Defendants' liability to the State for Response Costs and Response Actions in a judicially approved settlement.

## II. DEFINITIONS

2. The following definitions shall apply in this Consent Decree:

- A. "CERCLA" means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended 42 U.S.C. § 9601 *et seq.*
- B. "Consent Decree" or "Decree" means this Consent Decree and Final Judgment Entry and all appendices hereto.
- C. "Decision Document" means the document issued by the Director of Ohio EPA on August 1, 2018, after the public notice and comment period for the Preferred Plan giving the Director's selected remedy for the Site and reasons for its selection. The definition includes adjustments to the Decision Document that are included in the Former Kilgore Site Remedial Design/Remedial Action Project Status Letter, received by Ohio EPA on April 16, 2021 and approved on April 27, 2021.
- D. "Defendants" means Otterbein University and the United States of America.
- E. "Director" means Ohio's Director of Environmental Protection.
- F. "DOD" means the United States Department of Defense as described in 10 U.S.C. § 111.
- G. "Effective Date" means the date the clerk of the U.S. District Court for the Southern District of Ohio, Eastern Division, enters this Consent Decree.
- H. "Environmental Covenant" means a servitude arising under an environmental response project that imposes activity and use limitations and that meets the requirements established in section 5301.82 of the Revised Code.



I. “Facility” means the former Kilgore Manufacturing Company facility, now owned by Otterbein University, comprising approximately 110 acres and located at 600 North Spring Street in Westerville, Ohio.

J. “Guidance Documents” mean those documents identified in Appendix D to this Consent Decree.

K. “Matters Addressed” means the Work, Ohio’s Response Costs, Otterbein’s Response Costs, and the United States’ Response Costs.

L. “National Contingency Plan” or “NCP” means the National Oil and Hazardous Substances Pollution Contingency Plan, promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, including, but not limited to, any amendments thereto.

M. “Ohio EPA” means the Ohio Environmental Protection Agency and its designated representatives.

N. “Ohio Response Costs” means the State of Ohio’s costs of “response” as that term is defined by Section 101(25) of CERCLA, 42 U.S.C. § 9601(25), that are not inconsistent with the National Contingency Plan, and that have been incurred, or will be incurred, by the State related to the investigation and remediation of the Site including, but not limited to, payroll costs, contractor costs, travel costs, direct costs, overhead costs, administrative costs, legal and enforcement related costs, oversight costs, laboratory costs, the costs of reviewing and developing plans, reports, and other items pursuant to this Consent Decree, verifying the Work, or otherwise implementing or enforcing this Consent Decree. For purposes of this Consent Decree, “Past Ohio Response Costs” are those costs incurred by the State on and before July, 2021. “Future Ohio Response Costs” are those costs incurred by the State after July, 2021 in connection with the RD/RA required by this Consent Decree.

O. “Otterbein’s Response Costs” means all costs related or pertaining to the Facility that are necessary, that are consistent with the NCP, and that have been previously incurred at the Facility or will be incurred through the performance of the Work required by this Consent Decree.

P. “Paragraph” means a portion of this Consent Decree identified by an Arabic numeral or an uppercase or lowercase letter.

Q. “Parties” means collectively the State of Ohio, Otterbein University and the United States.

R. “Performing Defendant” means Otterbein University.

S. “Plaintiff” or “State” means the Ohio EPA by and through the Ohio Attorney General.

T. “RCRA” means the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901, *et seq.* (also known as the Resource Conservation and Recovery Act).

U. “Remedial Design” means the detailed engineering plans, specifications and construction drawings, which are in compliance with the National Contingency Plan (“NCP”) and sufficient to implement the selected Remedial Action.

V. “Remedial Action” means any action, or part thereof, selected by Ohio EPA that abates or reduces the threat posed by a placement or disposal or threatened disposal of hazardous substances to prevent present or future harm to the public health or welfare or to the environment, including operation and maintenance of the Remedial Action, and is consistent with the applicable local, state and federal laws and regulations, the NCP, and this Consent Decree.

W. “RD/RA” means the Remedial Design and Remedial Action including operation and maintenance of the Site to be performed under this Consent Decree.

X. “RD/RA Work Plan” means the work plan received by Ohio EPA on June 21, 2021 and approved by Ohio EPA on June 23, 2021, as set forth in Appendix C of this Consent Decree and the documents detailing the requirements necessary to implement the RD/RA, as more fully described in the appendices to this Consent Decree.

Y. “Section” means a portion of this Consent Decree identified by a Roman numeral.

Z. “Settling Federal Agencies” means DOD acting by and through the United States Department of the Army.

AA. “Site” means the approximate 40-acre portion of the Facility, as depicted on Appendix B, where the treatment, storage, and/or disposal of hazardous waste and/or hazardous substances, and/or the discharge to waters of the state of industrial waste or other wastes have occurred, including any other area where such hazardous wastes, hazardous substances, industrial wastes, and/or other wastes have migrated or threaten to migrate.

BB. “State” means the State of Ohio by and through its Attorney General on behalf of the Ohio Environmental Protection Agency.

CC. “Transferee” means any future owner of any interest in the Site, including

but not limited to, owners of an interest in fee simple, mortgagors, easement holders, and lessees.

DD. “United States” means the United States of America and each of its departments, agencies, and instrumentalities, including but not limited to the United States Department of Defense.

EE. “Waste Material” means (1) any “hazardous waste” under R.C. 3734.01(J) or Ohio Adm. Code 3745-50-10(A) or 3745-51-03; (2) any “hazardous constituents” as that term is defined in Ohio Adm. Code 3745-50-10(A) and listed in the appendix to Ohio Adm. Code 3745-51-11; (3) any “industrial waste” under R.C. 6111.01(C); or (4) any “other wastes” under R.C. 6111.01(D).

FF. “Work” means all activities Performing Defendant is required to perform under this Consent Decree.

### **III. JURISDICTION AND VENUE**

3. This Court has subject matter jurisdiction over claims in the Complaint, pursuant to 28 U.S.C. § 1331 (Federal Question), 42 U.S.C. §§ 9607 and 9613(b) (CERCLA), and 28 U.S.C. § 1367 (Supplemental Jurisdiction). This Court has personal jurisdiction over the Parties. Venue is proper in this Court. For the purposes of this Consent Decree, Defendants agree that the State’s Complaint, Case No. 11-cv-508, states one or more claims upon which relief can be granted.

### **IV. PARTIES BOUND**

4. The provisions of this Consent Decree shall apply to and be binding upon the State, Defendants, and Defendants’ agents, officers, employees, assigns, and successors in interest. Performing Defendant is ordered and enjoined to provide a copy of this Consent Decree to each contractor it employs to perform Work itemized herein. Performing Defendant shall ensure that its contractors perform the Work contemplated herein in accordance with this Consent Decree. No change in corporate ownership or status of Performing Defendant, including, without limitation, any transfer of assets or real or personal property, shall in any way alter Performing Defendant’s

obligations under this Consent Decree.

5. The obligations of Defendants to pay the amounts owed to the State under this Consent Decree are set forth in Sections XX and XXII of this Consent Decree.

#### **V. CALCULATION OF TIME**

6. Unless otherwise stated in this Consent Decree, where this Consent Decree requires actions to be taken within a specified period of time (*e.g.*, “within thirty (30) days”), this time period shall begin the day after the Effective Date of this Consent Decree unless the time is otherwise stated to start at another point in time. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or State of Ohio or federal holiday, the period shall run until the end of the next day that is not a Saturday, Sunday or legal holiday.

#### **VI. SATISFACTION OF LAWSUIT; NO ADMISSION**

7. Except as provided in Section XXIV, Agreements Not to Sue and Reservation of Rights, compliance with the terms of this Consent Decree shall constitute full satisfaction of any civil liability of Defendants to the State for all claims alleged in the Complaint and all Matters Addressed. Nothing in this Section shall apply to new conditions at or new information about the Site, or to any violations arising out of acts or omissions first occurring after the Effective Date. This Consent Decree is not to be interpreted as an admission on the part of any Party of any liability or wrongdoing, and it is expressly understood that no Party admits liability of any sort on any issue of fact or law. This Consent Decree supersedes the previous consent decree in this action, for remedial investigation and feasibility study of the Site, which is hereby terminated pursuant to the requirements of that consent decree.

## **VII. REMEDIAL ACTION AND OTHER INJUNCTIVE RELIEF**

8. Performing Defendant is ordered and enjoined to comply with all applicable provisions of the Ohio hazardous waste laws and rules and water pollution laws and rules as set forth in R.C. Chapters 3734 and 6111 and Ohio Adm. Code Chapters 3745-1 through 3745-2 and 3745-50 through 3745-69 and 3745-270.

9. Performing Defendant is ordered and enjoined to comply with and implement the requirements set forth in this Consent Decree and the appendices hereto.

## **VIII. IMPLEMENTATION OF THE REMEDY**

10. Performing Defendant shall implement Appendix C, the RD/RA Work Plan, approved by Ohio EPA on June 23, 2021, and the Work detailed therein in accordance with the schedule contained in the approved RD/RA Work Plan. All Work to be performed by Performing Defendant pursuant to this Section shall be under the direction and supervision of a qualified engineer or geologist with expertise in hazardous waste site investigation and remediation.

## **IX. ADDITIONAL WORK**

11. Should Ohio EPA determine that additional Work is necessary to achieve the purposes of this Consent Decree, as set forth in Section I, Ohio EPA may notify Performing Defendant in writing of the need for such additional Work. Within thirty (30) days of the receipt of such notification from Ohio EPA, Performing Defendant shall prepare and submit to Ohio EPA for review and approval a work plan for the performance of the additional Work ("Work Plan for Additional Work"). Any required Work Plan for Additional Work that includes sampling as an element shall include a sampling plan together with a rationale for the sampling activities,

locations, quantity and frequency of sampling, constituents for analysis, and quality control/quality assurance procedures.

12. Performing Defendant shall submit the Work Plan for Additional Work for review and approval pursuant to Section XV, Review of Submittals, and Section XXIX, Mailing and Delivery of Documents. Upon approval of the Work Plan for Additional Work by Ohio EPA, Performing Defendant shall implement the Work Plan for Additional Work in accordance with the schedules contained therein.

13. In the event that Performing Defendant determines that additional Work is necessary to achieve the purposes of this Consent Decree as set forth in Section I, Performing Defendant shall submit a written request for approval to Ohio EPA explaining the need for and detailing the nature of the additional Work prior to performing the additional Work. Upon agreement by Ohio EPA with Performing Defendant's request, Performing Defendant shall develop and implement a Work Plan for Additional Work as set forth in this Section IX of this Consent Decree.

14. In the event that additional Work is necessary for any task described in this Consent Decree, the deadline for completing such task(s) shall be extended by the amount of time required to perform the additional Work required, including the period of time required to plan and/or obtain approval from the Ohio EPA for the performance of such Work.

#### **X. NOTICE, LAND USE, AND CONVEYANCE OF TITLE**

15. Notice. If Performing Defendant conveys any interest in the property included in the Site, each deed, title, or other instrument shall contain a notice stating that the property is subject to this Consent Decree and shall reference any monitoring, treatment, or containment

devices present on the property as a result of this Consent Decree, and shall include a requirement that any subsequent owner shall not in any way compromise said monitoring, treatment, or containment devices, or any other element of the remedy chosen for the Site.

16. Land Use. Performing Defendant, its successors and assigns shall ensure that no portion of the Site shall be used in any manner that would adversely affect the integrity of any containment, treatment, or monitoring systems at the Site, or violate any use restrictions applicable to the Site under this Consent Decree.

17. Environmental Covenant. Within sixty (60) days after the Effective Date of this Consent Decree, unless otherwise agreed by the Parties, or after acquiring an interest in the property, Performing Defendant shall record with the Delaware County Recorder's Office an Environmental Covenant for the property that is part of the Site owned by the Performing Defendant. The Environmental Covenant shall be consistent with the template contained in Appendix E, shall be signed by Performing Defendant, and shall be approved and signed by Ohio EPA. The Environmental Covenant shall be recorded in the deed or official records of the County Recorder of Delaware County, Ohio pursuant to R.C. 5301.82. The terms and conditions of the Environmental Covenant are incorporated into this Consent Decree and shall be binding upon Performing Defendant. Thereafter, if Performing Defendant conveys any interest in the property included in the Site, each deed, title, or other instrument shall contain a notice stating that the property is subject to this Consent Decree and shall reference any monitoring, treatment, or containment systems present on the property as a result of this Consent Decree.

18. Proof of Filing Environmental Covenant. Within thirty (30) days after filing with the Delaware County Recorder the executed Environmental Covenant, Performing Defendant shall

certify to Ohio EPA that the Environmental Covenant has been filed for recording, and include with the certification a file and date-stamped copy of the recorded Environmental Covenant. If the Environmental Covenant is violated or breached by Performing Defendant, the Performing Defendant shall be in violation of this Consent Decree.

19. Notice of Transfer of Property. Prior to Performing Defendant's executing an instrument conveying any interest in any portion of the Site, including but not limited to easements, deeds, leases and mortgages, Performing Defendant shall notify the party purchasing the property of the existence of any containment, treatment, and monitoring systems on the Site, and shall provide a copy of this Consent Decree to the party purchasing the property. Performing Defendant shall notify Ohio EPA at least sixty (60) days in advance of each conveyance of an interest in any portion of the property that is known to comprise the Site. The notice shall include a copy of the deed transfer document and the name and address of the party purchasing the property and a description of the provisions made for the continued access to and maintenance of the containment, treatment, and monitoring systems. Within thirty (30) days after conveyance of any interest in any portion of the property, Performing Defendant shall submit to Ohio EPA, by email to Raymond R. Moreno, [Raymond.Moreno@epa.ohio.gov](mailto:Raymond.Moreno@epa.ohio.gov), or his successor, and to Sam Staschiak at [Samuel.Staschiak@epa.ohio.gov](mailto:Samuel.Staschiak@epa.ohio.gov), or his successor, the following information:

- A. A copy of the deed or other documentation evidencing the conveyance.
- B. The name, address, and telephone number of the new property owner and the name, address, and telephone number of the contact person for the new property owner.
- C. A legal description of the property, or the portion of the property, being transferred.
- D. A copy of the survey map, if any, of the property, or the portion of the property, being transferred.



- E. The closing date of the transfer of ownership of the property, or portion of the property.

#### **XI. DESIGNATION OF SITE COORDINATORS**

20. Within ten (10) days of the Effective Date of this Consent Decree, Performing Defendant shall designate, in writing or by email, a Site Coordinator to oversee and implement the Work required by this Consent Decree and to coordinate with the Ohio EPA Site Coordinator. Performing Defendant may also designate an alternate Site Coordinator. To the maximum extent practicable, communication between Performing Defendant and Ohio EPA concerning the activities performed under this Consent Decree shall be through the Site Coordinators. Each Party's Site Coordinator shall be responsible for ensuring that communications from the other Party are appropriately disseminated and processed. For the duration of this Consent Decree, Performing Defendant's designated Site Coordinator or alternate shall be on-site or on-call during all hours of Work to be performed pursuant to this Consent Decree. The absence of the Ohio EPA Site Coordinator from the Site shall not be cause for stoppage of Work unless otherwise provided.

21. Performing Defendant or Ohio EPA may change their Site Coordinator or alternate by notifying the other Party at least five (5) days prior to the change, unless impractical, but in no event later than the actual day the change is made.

22. Without limiting any authority conferred by law on Ohio EPA, the authority of the Ohio EPA Site Coordinator includes, but is not limited to:

- A. Taking samples and directing the type, quantity and location of samples to be taken by Performing Defendant pursuant to an approved work plan.
- B. Observing, taking photographs, or otherwise recording information related to the implementation of this Consent Decree, including the use of any mechanical or photographic device.

- C. Directing that Work stop whenever the Ohio EPA Site Coordinator determines that the activities at the Site may create or exacerbate a threat to public health or safety or threaten to cause or contribute to air or water pollution or soil contamination.
- D. Conducting investigations and tests related to the implementation of this Consent Decree.
- E. Inspecting and copying records, operating logs, contracts and/or other documents related to the implementation of this Consent Decree.
- F. Assessing compliance with this Consent Decree by Performing Defendant and its agents and/or contractors.

## **XII. SAMPLING AND DATA AVAILABILITY**

23. Performing Defendant shall notify Ohio EPA not less than ten (10) days in advance of all sample collection activity. Upon request, Performing Defendant shall allow split and/or duplicate samples to be taken by Ohio EPA. Ohio EPA shall also have the right to take any additional samples it deems necessary.

24. As part of the monthly progress reports required in Section XIV, Progress Reports and Notice, Performing Defendant shall submit to Ohio EPA copies of the results of all sampling and/or tests or other data, including validated raw data and original laboratory reports, generated by or on behalf of Performing Defendant with respect to the Site and any Work related to this Consent Decree.

25. Performing Defendant shall submit to Ohio EPA by email to Raymond R. Moreno, Raymond.Moreno@epa.ohio.gov, or his successor, and to Sam Staschiak at Samuel.Staschiak@epa.ohio.gov, or to his successor, with copies to the Settling Federal Agencies, all interpretive reports and written explanations concerning the raw data and original laboratory reports. Such interpretive reports and written explanations shall not be submitted in lieu of original laboratory reports and raw data. Should Performing Defendant subsequently discover an error in

any report or raw data, Performing Defendant shall promptly notify Ohio EPA of such discovery and provide the correct information, in writing.

### **XIII. SITE ACCESS**

26. As of the Effective Date of this Consent Decree, Plaintiff and its representatives and contractors shall have access at all reasonable times to the Site and any other property controlled by or available to Performing Defendant to which access is necessary to effectuate the actions required by this Consent Decree. Access shall be allowed for the purposes of conducting activities related to this Consent Decree including but not limited to:

- A. Monitoring the Work or any other activities taking place at the Site.
- B. Verifying any data or information submitted to Plaintiff.
- C. Conducting investigations relating to contamination at or near the Site.
- D. Obtaining samples.
- E. Assessing the need for, planning, or implementing additional response actions at or near the Site.
- F. Inspecting and copying records, operating logs, contracts or other documents maintained or generated by Performing Defendant or its agents, consistent with this Consent Decree and applicable law.
- G. Using a camera, video recording, sound recording, or other documentary production equipment.
- H. Assessing compliance with this Consent Decree by Performing Defendant and their agents and/or contractors.

27. To the extent that any property of the Site, to which access is necessary to effectuate the actions required by this Consent Decree, is owned or controlled by persons other than Performing Defendant, Performing Defendant shall use its best efforts to secure access from such persons for Performing Defendant and Ohio EPA as necessary to effectuate this Consent Decree.

Copies of all access agreements obtained by Performing Defendant shall be provided promptly to Ohio EPA. If any access required to effectuate this Consent Decree is not obtained within thirty (30) days of the Effective Date of this Consent Decree, or within thirty (30) days of the date Ohio EPA notifies Performing Defendant in writing that additional access beyond that previously secured is necessary, Performing Defendant shall promptly notify Ohio EPA in writing of the steps Performing Defendant has taken to attempt to obtain access. Ohio EPA may, as it deems appropriate, assist Performing Defendant in obtaining access.

28. Nothing in this Consent Decree shall be construed to limit the statutory authority of the Director or his authorized representatives to enter at reasonable times upon any private or public property, real or personal, to inspect or investigate, obtain samples and examine or copy any records to determine compliance with R.C. Chapters 3734 and/or 6111.

#### **XIV. PROGRESS REPORTS AND NOTICE**

29. Beginning with the first full month following the Effective Date of this Consent Decree and throughout the period that this Consent Decree is effective, unless otherwise directed by Ohio EPA, Performing Defendant shall submit, by email to Raymond R. Moreno, [Raymond.Moreno@epa.ohio.gov](mailto:Raymond.Moreno@epa.ohio.gov), or his successor, and to Sam Staschiak at [Samuel.Staschiak@epa.ohio.gov](mailto:Samuel.Staschiak@epa.ohio.gov), or to his successor, with copies to the Settling Federal Agencies, a written progress report to Ohio EPA by the tenth day of every month. At a minimum, the progress reports shall:

- A. Describe the status of the Work and actions taken toward achieving compliance with the Consent Decree during the reporting period.
- B. Describe the difficulties encountered during the reporting period and actions taken to rectify any difficulties.

- C. Describe activities planned for the next month.
- D. Identify changes in key personnel.
- E. List targets and actual completion dates for each element of activity, including project completion.
- F. Provide an explanation for any deviation from any applicable schedule.
- G. Indicate what analytical data was received during the period and provide copies of all data required under Section XII, Sampling and Data Availability.
- H. Indicate the quantity of the contaminated soil and waste that was treated and/or removed and the contaminated ground water and surface water that was treated and where such contaminated media were disposed.

#### **XV. REVIEW OF SUBMITTALS**

30. This Section applies to all documents Performing Defendant is required to submit to Ohio EPA for review and approval in accordance with the requirements of this Consent Decree.

31. All RD/RA documents submitted to Ohio EPA shall be developed in accordance with the attached RD/RA Work Plan and Guidance Document List (Appendices C and D). Every document that Performing Defendant is required to submit to Ohio EPA under this Consent Decree is subject to no more than ninety (90) day review by Ohio EPA, unless Ohio EPA notifies Performing Defendant in writing that additional review time is required due to extenuating circumstances, in accordance with this Consent Decree and applicable state and federal laws. Upon review, Ohio EPA may at its sole discretion (1) approve the submission in whole or in part; (2) approve the submission upon specified conditions or modifications; (3) modify the submission; (4) disapprove the submission in whole or in part; (5) notify Performing Defendant of deficiencies; or (6) any combination of the above.

32. If Ohio EPA disapproves a submittal, in whole or in part, Ohio EPA will notify Performing Defendant of the deficiencies in writing within ninety (90) days of the submittal. Performing Defendant shall, within forty-five (45) days of receipt of Ohio EPA's written notice, or if supplemental field, laboratory, or other investigatory work must be performed, within forty-five (45) days of completion of such work, or such longer period of time as specified in writing by Ohio EPA, correct the deficiencies and submit a revised submission to Ohio EPA for approval. Notwithstanding the notice of deficiency, Performing Defendant shall proceed to take any action(s) required by the approved portion(s) of the submission.

33. If Ohio EPA does not approve a revised submission, in whole or in part, Ohio EPA may again require Performing Defendant to correct the deficiencies and incorporate all changes, additions, and/or deletions within fourteen (14) days, or such time period as specified by Ohio EPA in writing. In the alternative, Ohio EPA may approve upon condition, modify or disapprove the revised submission.

34. In the event of approval or approval upon conditions or modifications, Performing Defendant shall proceed to take any action required by the submission as approved by Ohio EPA.

35. All work plans, reports, or other items required to be submitted to Ohio EPA under this Consent Decree shall, upon written approval by Ohio EPA, be deemed to be incorporated in and made an enforceable part of this Consent Decree. In the event that Ohio EPA approves a portion of a work plan, report, or other item, the approved portion, together with any modifications or conditions thereto, shall be deemed to be incorporated in and made an enforceable part of this Consent Decree.

36. If Ohio EPA determines that any additional or revised guidance documents affect the Work to be performed in implementing the RD/RA, Ohio EPA will notify Performing Defendant, and Performing Defendant shall modify the work plan(s) and/or other affected documents according to Ohio EPA's comments.

#### **XVI. DISPUTE RESOLUTION**

37. This Section shall only be applicable to the following portions of this Consent Decree: Section VIII, Implementation of the Remedy; Section IX, Additional Work; Section XV, Review of Submittals; and Sections XX, Payments and Reimbursement of Costs by Otterbein University to Ohio EPA and the Ohio Attorney General, and XXII, Payments and Reimbursement of Costs by the United States to Ohio EPA and the Ohio Attorney General, to the extent that the dispute concerns the accuracy of the State's request for reimbursement and/or whether the costs are related to Work beyond the objectives of this Consent Decree as set forth in Section I, Statement of Purpose. In the event of a dispute over Future Ohio Response Costs, Defendants shall not be required to pay the contested amount of the Future Ohio Response Costs until the dispute is resolved.

38. The Site Coordinators and/or the alternate Site Coordinators shall, whenever possible operate by consensus. In the event that a disagreement exists about either the adequacy or disapproval of any work plan, report, or other item required to be submitted by Performing Defendant pursuant to this Consent Decree, or the need for additional Work, then the Site Coordinators shall have fifteen (15) days from the date the dispute arises to negotiate in good faith in an attempt to resolve the differences. The dispute arises when either the Ohio EPA Site Coordinator provides a brief written notice of dispute to the Performing Defendant's Site

Coordinator, or the Performing Defendant's Site Coordinator provides a brief written notice of dispute to the Ohio EPA Site Coordinator. This fifteen (15) day period may be extended by mutual agreement of the Parties, up to an additional seven (7) days.

39. In the event that the Site Coordinators and/or the alternate Site Coordinators are unable to reach consensus on the dispute, then each Site Coordinator and/or the alternate Site Coordinator shall reduce his or her position to writing within thirty (30) days of the end of the good faith negotiations referenced in Paragraph 38. Those written positions shall be immediately exchanged by the Site Coordinators. Following the exchange of written positions, the Parties shall have an additional fourteen (14) days to resolve their dispute. If Ohio EPA concurs with the position of the Performing Defendant, then the work plan, report or other item required to be submitted pursuant to this Consent Decree shall be modified as provided for by Ohio EPA. If necessary, either Party may petition this Court for modification of the Consent Decree to include any required extensions of time or variances of required Work.

40. If Ohio EPA does not concur with the position of Performing Defendant, the Ohio EPA Site Coordinator will notify the Performing Defendant in writing. Upon receipt of such written notice, the Parties shall have fourteen (14) days to forward a request for resolution of the dispute, along with a written statement of the dispute, to an Ohio EPA, Division of Environmental Response and Revitalization ("DERR") Manager. The statement of dispute shall be limited to a concise presentation of the Parties' position on the dispute. The DERR Manager, or his/her designee, will resolve the dispute based upon and consistent with this Consent Decree, state law, including R.C. Chapters 3734 and 6111, and the regulations promulgated thereunder, the NCP, and other applicable state and federal laws.



41. If Performing Defendant and Ohio EPA do not agree on a resolution of the dispute within fourteen (14) days of the decision reached by the DERR Manager, either Party may petition this Court to resolve the dispute under this Consent Decree. In this Court proceeding, Performing Defendant shall have the burden of demonstrating by a preponderance of the evidence that the decision by Ohio EPA is unlawful and/or unreasonable.

42. The pendency of dispute resolution set forth in this Section shall not affect the time period for completion of the Work to be performed under this Consent Decree, except that upon written mutual agreement of the Parties, any time may be extended as appropriate under the circumstances. Elements of Work not affected by the dispute will be completed in accordance with the schedules contained in the RD/RA Work Plan and other deliverables.

43. Within thirty (30) days of resolution of a dispute regarding disapproval or inadequacy of a submittal or the need for additional Work, Performing Defendant shall incorporate the resolution and final determination into the work plan, report, or other item required to be submitted under this Consent Decree and proceed to implement this Consent Decree according to the amended work plan, report, or other item required to be submitted under this Consent Decree.

44. In the event that a disagreement exists about the accuracy of the State's request for reimbursement of Future Ohio Response Costs, then within sixty (60) days from receipt of the invoice for payment of Future Ohio Response Costs, a Defendant shall submit to a DERR Manager a concise written presentation of the Defendant's position on the dispute. The DERR Manager, or his/her designee, will resolve the dispute based upon and consistent with this Consent Decree; state law, including R.C. Chapters 3734 and 6111, and the regulations promulgated thereunder; the NCP; and other appropriate state and federal laws.

45. If Defendants and Ohio EPA do not agree on a resolution of the Future Ohio Response Costs dispute within fourteen (14) days of the decision reached by the DERR Manager, any Party may file a motion in this Court to resolve the dispute under this Consent Decree. In this Court proceeding, Defendants shall have the burden of demonstrating by a preponderance of the evidence that the decision by Ohio EPA is unlawful, unreasonable, or inconsistent with the terms of this Consent Decree.

46. Within sixty (60) days after resolution of a dispute regarding any inaccurate statement issued for reimbursement of Future Ohio Response Costs, Ohio EPA will make any necessary corrections to the statement and submit to Defendants a corrected statement. Performing Defendant shall pay its 50% share of the corrected amount within thirty (30) days of receipt of the corrected amount. The United States shall pay its 50% share of the corrected amount as soon as reasonably practicable after receipt of the corrected statement.

47. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to those matters set forth in Paragraph 37 of this Consent Decree.

## **XVII. ACCESS TO INFORMATION**

48. Performing Defendant shall provide to Ohio EPA and/or the Settling Federal Agencies, upon request, copies of all non-privileged documents and information within its possession or control or within possession or control of its contractors or agents relating to events or conditions at the Site including, but not limited to manifests, reports, correspondence, or other documents or information related to the Work.

49. Performing Defendant may assert a claim that documents or other information submitted to Ohio EPA pursuant to this Consent Decree are confidential under the provisions of Ohio Adm. Code 3745-49-03 or 3745-50-30(A) or R.C. 6111.05(A). If no such claim of confidentiality accompanies the documents or other information when it is submitted to Ohio EPA, it may be made available to the public without notice to Performing Defendant.

50. Performing Defendant may assert that certain documents or other information are privileged under the attorney-client or any other privilege recognized by applicable law. If Performing Defendant asserts that certain documents or information are privileged or confidential under applicable law, it shall provide Ohio EPA and Settling Federal Agencies with the confidentiality being asserted and the basis for the assertion.

51. No claim of confidentiality or privilege, including but not limited to, claims made pursuant to R.C. 3745.70 through 3745.73, shall be made with regard to any data gathered pursuant to this Consent Decree, including but not limited to, all sampling, analytical, monitoring, or laboratory reports.

52. Performing Defendant shall preserve for the duration of this Consent Decree and for a minimum of ten (10) years after its termination, all documents and other information within its possession or control, or within the possession or control of its contractors or agents, which in any way relate to the Work notwithstanding any document retention policy to the contrary. Performing Defendant may preserve such documents by microfiche, compact disc, or other electronic or photographic device. Performing Defendant shall notify Ohio EPA and Settling Federal Agencies at least sixty (60) days prior to the destruction of these documents or other information; and upon request, shall deliver such documents and other information to Ohio EPA.

### **XVIII. INDEMNITY**

53. Performing Defendant agrees to indemnify, save, and hold harmless, but not defend, the State from any and all claims or causes of action arising from, or related to, events or conditions at the Site, except where the claims or causes of action result from negligent, reckless, or intentionally tortious conduct by the State occurring outside of the State's exercise of its discretionary functions. Discretionary functions of the State include, but are not limited to, the State's review, approval, or disapproval of Work performed pursuant to the Consent Decree. The State agrees to provide notice to Performing Defendant within thirty (30) days of receipt of any claim that may be the subject of indemnity as provided in this Section, and to cooperate with Performing Defendant in the defense of any such claim or action against the State. The State shall not be considered a party to and shall not be held liable under any contract entered into by Performing Defendant in carrying out the activities pursuant to this Consent Decree.

### **XIX. UNAVOIDABLE DELAYS**

54. If any event occurs that causes or may cause a delay of any Work requirements of this Consent Decree, Performing Defendant shall notify the Ohio EPA Site Coordinator in writing within ten (10) calendar days of the event, describing in detail the anticipated length of the delay, the precise cause or causes of the delay, the measures taken and to be taken to prevent or minimize the delay and the timetable by which measures will be implemented. Performing Defendant shall adopt all reasonable measures to avoid or minimize any such delay.

55. With the provision that the notification in Paragraph 54, above, does not necessarily terminate or delay any Work requirement in this Consent Decree, in any action by the State to enforce any of the provisions of this Consent Decree, Performing Defendant may raise that it is

entitled to a defense and that its conduct was caused by reasons entirely beyond its control such as, by way of example and not limitation, acts of God, strikes, acts of war, civil disturbances, or vandalism. While the State does not agree that such a defense exists, it is, however, hereby agreed upon by Performing Defendant and the State that it is premature at this time to raise and adjudicate the existence of such a defense and that the appropriate point at which to adjudicate the existence of such a defense is at the time that a proceeding to enforce this Consent Decree, if any, is commenced by the State. At that time, Performing Defendant will bear the burden of proving that any delay was or will be caused by circumstances entirely beyond the control of the Performing Defendant. Unanticipated or increased costs associated with the implementation of any Work required by this Consent Decree, shall not serve as a basis for an extension of time under this Consent Decree. Any extension of a date based on a particular incident does not mean that Performing Defendant shall receive an extension of a subsequent date or dates. Performing Defendant must make an individual showing of proof for each incremental step or other requirement for which an extension is sought.

**XX. PAYMENTS AND REIMBURSEMENT OF COSTS BY OTTERBEIN  
UNIVERSITY TO OHIO EPA AND THE OHIO ATTORNEY GENERAL**

56. No later than one hundred twenty (120) days after the Effective Date of this Consent Decree, Performing Defendant shall pay to Ohio EPA \$81,305.96 in settlement of its share of all unpaid Past Ohio Response Costs incurred by Ohio EPA through July of 2021. Payment shall be paid in the form of a certified check made payable to “Treasurer, State of Ohio” and forwarded to Sandra Finan, Paralegal, or her successor, Environmental Enforcement Section, 30 East Broad St., 25<sup>th</sup> Floor, Columbus, OH 43215. Performing Defendant shall send a copy of the transmittal letter

and a copy of the check to the DERR Fiscal Officer, the Ohio EPA Kilgore Manufacturing Site Coordinator, and the Assistant Attorney General representing the State in this case.

57. Performing Defendant shall reimburse Ohio EPA for 50% of the Future Ohio Response Costs. Ohio EPA will submit an itemized statement of its Future Ohio Response Costs to Performing Defendant on an annual basis. Performing Defendant shall pay its 50% share of Future Ohio Response Costs for the previous year within one hundred twenty (120) days of receipt of such itemized statement at the address set forth on the statement.

58. No later than one hundred twenty (120) days after the Effective Date of this Consent Decree, Performing Defendant shall pay to the Ohio Attorney General \$2,062.40 in settlement of its share of all unpaid Ohio Response Costs incurred by the Ohio Attorney General through the Effective Date of this Consent Decree. Payment shall be paid in the form of a certified check made payable to “Treasurer, State of Ohio” and forwarded to Sandra Finan, Paralegal, or her successor, Environmental Enforcement Section, 30 East Broad St., 25<sup>th</sup> Floor, Columbus, OH 43215. Performing Defendant shall send a copy of the transmittal letter and a copy of the check to the Assistant Attorney General representing the State in this case.

59. Pursuant to R.C. 131.02(D), interest shall accrue on all Ohio Response Costs from the date that they become past due, at the rate per annum required by R.C. 5703.47, until payment is remitted. Performing Defendant shall remit payment for any such interest due to Ohio EPA by a certified check made payable to “Treasurer, State of Ohio,” at the address set forth in Paragraph 56 or on the itemized statement. Payment of interest on past due Ohio Attorney General’s costs shall be by electronic funds transfer according to the payment instructions provided by the Ohio Attorney General’s Office.

**XXI. PAYMENTS AND REIMBURSEMENT OF COSTS BY THE UNITED STATES  
TO OTTERBEIN UNIVERSITY (PERFORMING DEFENDANT)**

60. As soon as reasonably practicable after the Effective Date of this Consent Decree, the United States, on behalf of the United States Department of Defense, shall pay Performing Defendant \$281,568.94 by electronic funds transfer pursuant to instructions to be provided by Performing Defendant, as its full share of Response Costs incurred, including all costs that have been incurred prior to the Effective Date. In the event the payment required under this Paragraph is not made within one hundred and twenty (120) days after the Effective Date, interest on the unpaid balance shall be paid at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), with the interest accrual commencing on the ninety-first day after the Effective Date.

61. Performing Defendant shall also make an annual written demand to the United States for subsequent payments of 50% of Otterbein's Response Costs that have not already been reimbursed by the United States ("Additional Response Costs"); except that Performing Defendant shall make no demands for additional costs after submission and approval by Ohio EPA of Completion of the Remedial Action Report pursuant to paragraph 5.6 of the Remedial Action Work Plan, Appendix C hereto. Performing Defendant may make its first annual written demand for 50% of Otterbein's Additional Response Costs incurred after the Effective Date and through the end of that calendar year. Performing Defendant will make all such demands in writing to the United States requesting reimbursement for costs incurred during the previous calendar year. Performing Defendant's written demand(s) under this Paragraph shall specify on a line-by-line basis: (i) the total amount of Additional Response Costs incurred by Performing Defendant during the prior one-year time period in connection with the performance of the RD/RA; (ii) the total

amount of Additional Response Costs for services of the Site Coordinator in connection with the performance of the RD/RA at the Site; and (iii) the total amount of any interest from the United States due or owing under the terms of this Consent Decree. Performing Defendant's written demands under this Paragraph shall not seek or demand payment for any costs incurred more than two (2) years prior to the date of receipt of the demand in writing. The United States has the right to refuse payment of any costs (including interest accrued on such costs) that have not been identified and sought in a written demand from Performing Defendant within two (2) years of the date on which the costs were incurred. Performing Defendant's written demands under this Paragraph shall not seek or demand payment for any costs that have not been paid by Performing Defendant as of the date of the demand, and the United States has the right to refuse payment of any costs that have not been paid by Performing Defendant as of the date of the demand.

**XXII. PAYMENTS AND REIMBURSEMENT OF COSTS BY THE UNITED STATES  
TO OHIO EPA AND THE OHIO ATTORNEY GENERAL**

62. As soon as reasonably practicable after the Effective Date of this Consent Decree, the United States shall pay \$81,305.96 in settlement of its share of all Past Ohio Response Costs incurred by Ohio EPA through July 2021. Payment shall be paid by electronic funds transfer according to the payment instructions provided by Ohio EPA.

63. The United States shall reimburse Ohio EPA for 50% of the Future Ohio Response Costs. Ohio EPA will submit an itemized statement of its Future Ohio Response Costs to Defendants on an annual basis. Ohio EPA shall make all such demands in writing to the United States requesting reimbursement for costs incurred during the previous calendar year. Ohio EPA's written demand(s) under this Paragraph shall specify on a line-by-line basis the total amount of response costs incurred by Ohio EPA during the prior one-year time period in connection with the



performance of the RD/RA. Ohio EPA's written demands under this Paragraph shall not seek or demand payment for any costs incurred more than two (2) years prior to the date of receipt of the demand in writing or for costs previously reimbursed by the United States. The United States has the right to refuse payment of any costs (including interest accrued on such costs) that have not been identified and sought in a written demand from Ohio EPA within two (2) years of the date on which the costs were incurred. The United States shall pay its 50% share of Future Ohio Response Costs for the previous year as soon as reasonably practicable after the receipt of such itemized statement at the address set forth on the itemized statement.

64. As soon as reasonably practicable after the Effective Date of this Consent Decree, the United States shall pay to the Ohio Attorney General \$2,062.40 in settlement of its share of all Ohio Response Costs incurred by the Ohio Attorney General through the Effective Date of this Consent Decree. Payment shall be paid by electronic funds transfer according to the payment instructions provided by the Ohio Attorney General's Office. The United States shall send a copy of the transmittal letter to the Assistant Attorney General representing the State in this case.

65. In the event that any payment required to be made by the United States under this Consent Decree is not made within one hundred twenty (120) days of the Effective Date for an amount specifically set forth in this Consent Decree or within one hundred twenty (120) days of receipt of an itemized statement to obtain payment submitted under this Consent Decree after the Effective Date, interest on the unpaid balance shall be paid at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), with interest accrual commencing on the hundred twenty-first day after the Effective Date or after the receipt date of the itemized statement. The United States shall remit payment for any such interest due to Ohio EPA/and or the Ohio

Attorney General by electronic funds transfer according to the payment instructions provided by the State.

66. The State and the United States agree that in any judicial proceeding to enforce the terms of this Consent Decree and/or to find the United States in contempt for failure to comply or delay in compliance with such terms, the United States may raise as a defense that such failure or delay was caused by circumstances beyond its control or that such failure or delay was caused by the unavailability of appropriated funds. While the State disagrees that such defenses exist, the State and the United States agree and stipulate that it is premature at this time to raise and adjudicate the existence of such defenses.

### **XXIII. FINANCIAL GUARANTEES**

67. Performing Defendant shall submit three (3) years of audited financial statements to Ohio EPA, concurrently with Performing Defendants' submission of the initial cost estimate for completion of the remedy, established at the conclusion of the Remedial Design phase, for Ohio EPA's review and approval in accordance with Section XVI, Review of Submittals.

68. Performing Defendant shall submit annual financial documentation to Ohio EPA by December 1 each year. The annual financial documentation shall include

- A. Audited financial statements for the previous fiscal year.
- B. A letter signed by the Performing Defendant's chief financial officer that:
  - references this Consent Decree and the lawsuit, including the case number; states
  - the current revised cost estimate, based upon actual cost of remediation and the
  - monies spent thereon; lists all facilities for which the Performing Defendant is
  - guaranteeing remedial action and operation and maintenance costs; lists all

facilities for which the Performing Defendant has submitted financial assurance of remedial action and operation and maintenance costs other than through a guarantee (if any); and states that the Performing Defendant is demonstrating financial assurance through this Consent Decree.

- C. A financial assurance information schedule, in the form of the financial assurance information schedule contained in Appendix F, signed and certified as accurate and complete by the Performing Defendant's chief financial officer.
- D. A copy of the independent certified public account's report on examination of the Performing Defendant's audited financial statements for the previous fiscal year.
- E. A special report from the Performing Defendant's independent certified public accountant to the Performing Defendant stating that:

1. The accountant has compared the data, which the letter from the chief financial officer specifies as having been derived from the independently audited year-end financial statements for the latest fiscal year, with the amounts in such financial statements.

2. In connection with that procedure, no matters came to the accountant's attention that caused the accountant to believe that the specified data should be adjusted.

69. Ohio EPA shall review the submitted annual financial documentation and notify Performing Defendant, in writing, whether Ohio EPA has determined that Performing Defendant meets the financial test criteria or Performing Defendant does not meet the financial test criteria.

70. To satisfy the financial test criteria, Performing Defendant must demonstrate either:

A. The Performing Defendant has the following:

1. Two of the following three ratios: a ratio of total liabilities to net worth less than 2.0; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; and a ratio of current assets to current liabilities greater than 1.5.
2. Net working capital and tangible net worth each at least six times the sum of the Current Revised Cost Estimate.
3. Tangible net worth of at least ten million dollars.
4. Assets in the United States amounting to at least ninety percent of the owner's or operator's total assets or at least six times the sum of the Current Revised Cost Estimate.

B. The Performing Defendant has the following:

5. A current rating for the owner's or operator's most recent bond issuance of "AAA, AA, A, or BBB" as issued by "Standard and Poor's" or "Aaa, Aa, A, or Baa" as issued by "Moody's."
6. Tangible net worth at least six times the sum of the Current Revised Cost Estimate.
7. Tangible net worth of at least ten million dollars.
8. Assets located in the United States amounting to at least ninety percent of the owner's or operator's total assets or at least six times the sum of the Current Revised Cost Estimate.

71. Ohio EPA may disallow use of this test based on any qualifications in the opinion expressed by the independent certified public account in the accountant's report on examination of the Performing Defendant's financial statements. An adverse opinion or a disclaimer of opinion will be cause for such disallowance. Ohio EPA will evaluate other qualifications on an individual basis.

72. Performing Defendant agrees that if Ohio EPA determines, based on Ohio EPA's review of any annual audited financial statement, that Performing Defendant fails to meet the financial test criteria, or if Ohio EPA disallows use of the financial test in accordance with the previous paragraph, Performing Defendant shall send, by email to Sam Staschiak at Samuel.Staschiak@epa.ohio.gov, or to his successor, notice to the Director of Ohio EPA that Performing Defendant intends to provide alternative financial assurance within ninety (90) days of Ohio EPA's determination. Within one hundred twenty (120) days after Ohio EPA's determination, the Performing Defendant shall establish such financial assurances.

73. Performing Defendant shall notify the Director, by email to Sam Staschiak at Samuel.Staschiak@epa.ohio.gov, or to his successor, of any voluntary or involuntary proceeding under "Title XI (Bankruptcy)," of the U.S. Code, naming Performing Defendant as debtor, no later than ten (10) days after that proceeding commences.

74. Performing Defendant agrees to remain bound under this section notwithstanding any or all of the following: amendment or modification of the remedial action and operation and maintenance plan, the extension or reduction of the time of performance of the remedial action and operation and maintenance, or any other modification or alteration of an obligation of the owner or operator.

#### **XXIV. AGREEMENTS NOT TO SUE AND RESERVATION OF RIGHTS**

75. In consideration of the actions that will be performed by the Performing Defendant and the payments to be made by the United States and Performing Defendant under the terms of this Consent Decree, and except as otherwise specifically provided in this Consent Decree, the State agrees not to sue or to take administrative action against Otterbein University and the United States pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), R.C. Chapters 3734, 3745 and 6111 or other applicable State or federal laws including common law, for the Work required by this Consent Decree or the Matters Addressed and/or for Past Ohio Response Costs and Future Ohio Response Costs. These agreements are conditioned upon the complete and satisfactory performance by the Defendants of their respective obligations under this Consent Decree, including, but not limited to, completion of the Work and payment of Ohio's Response Costs. These agreements extend only to the Defendants and do not extend to any other person.

76. This Consent Decree shall not be construed to limit the authority of the State to seek relief for claims, conditions, or response actions not addressed by this Consent Decree, including without limitation injunctive relief, civil penalties, and cost recovery. Nothing in this Consent Decree is intended as a release or Agreement not to sue for any claim or cause of action, administrative or judicial, civil or criminal, past or future, in law or in equity, which the State may have against any person, firm corporation or other entity not a Party to this Consent Decree.

77. Nothing in this Consent Decree shall be construed to limit the authority of the State to undertake any action against any entity, including either or both Defendants, to eliminate or mitigate conditions that may present an imminent threat to the public health, welfare or environment and to seek cost reimbursement for any such action. Nothing in this Consent Decree

shall be construed to limit the authority of the State to seek relief for claims for damage to natural resources.

78. Nothing in this Consent Decree shall relieve Defendants of any obligation to comply with R.C. Chapters 3734 and 6111 including, without limitation, any regulation, license or order issued under these Chapters, and any other applicable federal, state or local statutes, regulations, or ordinances, including but not limited to permit requirements.

79. The State reserves the right to seek legal and/or equitable relief to enforce the requirements of this Consent Decree, including penalties against Defendants for noncompliance with this Consent Decree.

80. The State reserves the right to perform all or any portion of the Work or take any other measures it deems necessary to protect public health and the environment, including recovery of all Ohio Response Costs, in the event that the requirements of this Consent Decree are not wholly complied with within the time frames required by this Consent Decree.

81. Upon the payments of Response Costs by the United States as required by this Consent Decree, the Performing Defendant hereby forever releases, discharges, and agrees not to assert (by way of the commencement of an action, the joinder of the United States in an existing action, or in any other fashion) any and all claims, causes of action, suits or demands of any kind whatsoever in law or in equity which it may have had, or hereafter have, including, but not limited to, claims under CERCLA sections 107 and 113, against the United States for the (1) Work required under this Consent Decree and the Matters Addressed; (2) Ohio's Response Costs; (3) any past response costs incurred by Otterbein as alleged in its Complaint; and (4) any response costs incurred by Otterbein through completion of the Work required under this Consent Decree.

82. By entering into this Consent Decree, Defendants do not waive any defenses that they may have in any future action identified in this Section, nor do Defendants waive any claim or defenses against any others not a Party to this action. However, in any subsequent administrative or judicial proceeding initiated by the State for injunctive relief, recovery of response costs, damages, or other relief relating to the Site, Defendants shall not assert, and may not maintain any defense or claim based upon statute of limitations or the principles of waiver, laches, res judicata, collateral estoppel, issue preclusion, claim splitting or other defenses based upon the contention that the claims brought by the State in a subsequent action were or should have been brought in the instant action.

83. In any subsequent administrative or judicial proceeding initiated by the Performing Defendant for injunctive relief, recovery of response costs, damages, or other relief relating to the Facility, the United States shall not assert, and may not maintain any defense or claim based upon statute of limitations or the principles of waiver, laches, res judicata, collateral estoppel, issue preclusion, claim splitting or other defenses based upon the contention that the claims brought by the Performing Defendant in a subsequent action were or should have been brought in the instant action.

84. The United States specifically reserves its right to assert any claims or actions regarding the Site brought on behalf of the United States Environmental Protection Agency, any lead agency under the NCP, or a natural resource trustee.

## **XXV. EFFECT OF SETTLEMENT; CONTRIBUTION PROTECTION**

85. The Parties agree, and by entering this Consent Decree this Court finds, that this Consent Decree constitutes a judicially approved settlement for purposes of Section 113(f)(2) of



CERCLA, 42 U.S.C. § 9613(f)(2), and that the Performing Defendant and the United States are entitled, as of the Effective Date, to protection from actions or claims as provided by CERCLA Section 113(f)(2), 42 U.S.C. § 9613(f)(2), or as may be otherwise provided by law, for Matters Addressed in this Consent Decree.

## **XXVI. OTHER CLAIMS**

86. Nothing in this Consent Decree shall constitute or be construed as a release from any claim, cause of action, or demand in law or equity against any person, firm, partnership, or corporation, not subject to this Consent Decree for any liability arising from, or related to, events or conditions at the Site, and Defendants have not purported to or held themselves out as representing another person, firm, partnership, or corporation. Defendants expressly deny that they are the agent for or represent or otherwise have the authority to represent or serve the interests of another person, firm, partnership, or corporation.

87. Performing Defendant certifies, based on knowledge and belief and subject to the penalties of the False Claims Act, 31 U.S.C. § 3729 *et seq.*, and other applicable law, that as of the Effective Date, it has not been reimbursed by any entity or party for the response costs for which it will receive reimbursement or payment under this Consent Decree. Performing Defendant shall not seek or accept any reimbursement or payment from any other entity or party for the portions of Performing Defendant's response costs that the United States pays or reimburses to Performing Defendant pursuant to this Consent Decree.

## **XXVII. TERMINATION**

88. This Consent Decree shall terminate upon joint motion of the Parties, and approval of the Court, following completion of all activities required under this Consent Decree. This

Section, and Section XXIV, Agreements Not to Sue and Reservation of Rights; Section VI, Satisfaction of Lawsuit; No Admission; Section X, Notice, Land Use, and Conveyance of Title; Section XVII, Access to Information; and Section XVIII, Indemnity shall survive this Termination provision.

#### **XXVIII. MODIFICATION**

89. Except as otherwise allowed by law or otherwise specifically permitted by the Consent Decree, non-substantive modifications, for example address changes, of this Consent Decree shall be by written approval by the Parties and notice of such modification(s) to the Court. Substantive modifications to this Consent Decree shall be by written agreement of the Parties and shall not take effect unless approved by the Court.

#### **XXIX. MAILING AND DELIVERY OF DOCUMENTS**

90. All documents requiring submittal pursuant to this Consent Decree or any plan developed in accordance with this Consent Decree shall be either distributed as otherwise agreed to by the parties or sent by email to:

Sam Staschiak  
Project Coordinator  
Ohio EPA  
Division of Environmental Response and Revitalization  
VAP, Enforcement, Remediation and Brownfields (VERB) Section  
P.O. Box 1049  
Columbus, OH 43216-1049  
Samuel.Staschiak@epa.ohio.gov

All correspondence with the Defendants shall be sent to the following:

Susan K. Bolt  
Vice President for Business Affairs  
One Otterbein University  
1 South Grove Street  
Westerville, OH 43081-2006

Telephone: (614) 823-1354

Chief, Environmental Defense Section  
United States Department of Justice  
Environmental & Natural Resources Division  
United States Department of Justice  
P.O. Box 7611  
Washington, DC 20044  
DJ#: 90-11-6-18349, 90-11-6-19174.

### **XXX. COMPLIANCE WITH APPLICABLE LAWS, PERMITS AND APPROVALS**

91. All activities undertaken by Performing Defendant pursuant to this Consent Decree shall be undertaken in accordance with the requirements of all applicable federal, state and local laws, rules, regulations and permits or other legal requirements, including the Consent Decree. Performing Defendant shall submit timely applications and requests for any such permits and approvals. Where such laws appear to conflict with the other requirements of this Consent Decree, Performing Defendant is ordered and enjoined to immediately notify Ohio EPA of the potential conflict. Performing Defendants is ordered and enjoined to include in all contracts or subcontracts entered into for Work required under this Consent Decree, provisions stating that such contractors or subcontractors, including their agents and employees, shall perform all activities required by such contracts or subcontracts in compliance with this Consent Decree and all applicable laws and rules. This Consent Decree is not a permit issued pursuant to any federal, state, or local law or rule.

92. Should Performing Defendant identify any inconsistency between or among this Consent Decree, any applicable federal, state or local laws, rules, regulations or permits or other legal requirements, or any of the guidance documents, work plans, reports, or other items required to be submitted to Ohio EPA under this Consent Decree, Performing Defendant shall promptly

notify Ohio EPA in writing of each inconsistency not later than thirty (30) days after identifying the inconsistency and the effect of the inconsistencies upon the Work to be performed. Performing Defendant shall also recommend, along with a supportable rationale justifying each recommendation, the requirement Performing Defendant believes should be followed. Performing Defendant shall implement the affected Work as directed by Ohio EPA.

**XXXI. APPENDICES AND DOCUMENTS APPROVED PURSUANT TO THIS  
CONSENT DECREE**

93. The Parties agree that the appendices attached to this Consent Decree and all documents approved by Ohio EPA pursuant to the requirements of this Consent Decree are incorporated by reference into and are an enforceable part of this Consent Decree.

**XXXII. COURT COSTS**

94. Performing Defendant shall pay any court costs in this case.

**XXXIII. STIPULATED PENALTIES**

95. In the event that any Ohio EPA approved deadline contained in the schedule of any approved or approved amended submittal is not met, Performing Defendant is ordered and enjoined to pay stipulated penalties that shall accrue in the amount of Fifty Dollars (\$50) per day for the first seven (7) days of non-compliance; One Hundred Twenty-Five Dollars (\$125) per day for the 8th day through the 14th day of noncompliance; Two Hundred Fifty Dollars (\$250) per day for the 15th day through the 30th day of non-compliance; and Five Hundred Dollars (\$500) per day, per violation for violations lasting beyond thirty (30) days and thereafter.

96. Any payment of stipulated penalties accrued under the provisions of Paragraph 95 shall be made by delivering to Sandra Finan, Paralegal, or her successor, at the Office of the Attorney General of Ohio, Environmental Enforcement Section, 30 East Broad Street, 25<sup>th</sup> Floor,

Columbus, Ohio 43215, a certified check(s) for the appropriate amounts(s), within fourteen (14) days from the date the default is cured, made payable to “Treasurer, State of Ohio” to be deposited into the Hazardous Waste Clean-up Account, created pursuant to R.C. Section 3734.28.

**XXXIV. AUTHORITY TO ENTER INTO THE CONSENT DECREE**

97. Each signatory for a Party represents and warrants that he/she has been duly authorized to sign this document and so bind the Party to all terms and conditions thereof. This Consent Decree may be executed in counterparts, each of which shall be deemed an original, but all of which taken together shall constitute one and the same instrument.

**XXXV. EFFECTIVE DATE**

98. This Consent Decree shall be effective upon the date of its entry by the Clerk.

**XXXVI. ENTRY OF CONSENT DECREE AND JUDGMENT BY CLERK**

99. Upon signing of this Consent Decree by the Court, the Clerk is directed to enter it.

**XXXVII. RETENTION OF JURISDICTION**

100. This Court shall retain jurisdiction of this action for the purpose of enforcing this Consent Decree.

**XXXVIII. PUBLIC NOTICE**

101. The Parties agree and acknowledge that final approval by the State and Defendants and entry of this Order is subject to the requirements of 40 C.F.R. 123.27(d)(2) (iii), which provides for notice of the lodging of the Consent Order, opportunity for public comment, and the consideration of any public comments. The State and Defendants reserve the right to withdraw this Order based on comments received during the public comment period.

**ORDER**

UPON CONSIDERATION OF THE FOREGOING, the Court hereby finds that this Decree is fair and reasonable, both procedurally and substantively, consistent with applicable law, in good faith, and in the public interest. THE FOREGOING Decree is hereby ENTERED.

This Court expressly directs, pursuant to Rule 58, Fed. R. Civ. P., ENTRY OF FINAL JUDGMENT in accordance with the terms of this Decree.

IT IS SO ORDERED this \_\_\_\_ day of \_\_\_\_\_, 2023.

JUDGE MICHAEL H. WATSON

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UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF OHIO

The undersigned Parties hereby consent to the foregoing Consent Decree in *State v. Otterbein University, et al.*

DAVE YOST  
OHIO ATTORNEY GENERAL

\_\_\_\_\_  
Date: November 7, 2022

IAN F. GAUNT (0097461)  
MARK J. NAVARRE (0013674)  
Assistant Attorneys General  
Environmental Enforcement Section  
30 East Broad Street  
Columbus, Ohio 43215  
Telephone: (614) 466-2766  
Facsimile: (614) 644-1926  
Ian.Gaunt@OhioAGO.gov  
Mark.Navarre@OhioAGO.gov

*Attorneys for the State of Ohio*

PERRY  
ROSEN

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PERRY ROSEN  
Date: 2023.05.18  
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Date: \_\_\_\_\_, 2022

\_\_\_\_\_  
PERRY M. ROSEN

United States Department of Justice

Environment & Natural Resources Division  
Environmental Defense Section  
P.O. Box 7611  
Washington, DC 20044  
Tel: (202) 353-7792  
perry.rosen@usdoj.gov

*Attorney for the United States*

  
\_\_\_\_\_  
RONALD L. KUIS, Esq.

Date May 22, 2023, ~~2022~~

12 Scenery Road  
Pittsburgh, Pennsylvania 15221  
Tel: (412) 731-7246  
Facsimile: (412) 731-3970  
rlkuis@aol.com

*Attorney for Otterbein University*

  
\_\_\_\_\_  
DALLAS F. KRATZER III

Date: May 18, 2023

Attorney  
Steptoe & Johnson PLLC  
Huntington Center, Suite 2200  
41 South High Street  
Columbus, OH 43215  
(614) 458-9827  
dallas.kratzer@steptoe-johnson.com

*Attorney for Otterbein University*



# Appendix A

## Decision Document



CONFIDENTIAL  
External Distribution Control

It is the policy of the Ohio Environmental Protection Agency to be a fair and equitable agency and to ensure that all decisions are based on the merits of the facts.

*Denise Lassiter* 8/1/2018

## DECISION DOCUMENT

**FOR THE REMEDIATION OF THE  
FORMER KILGORE MANUFACTURING SITE  
600 NORTH SPRING ROAD  
WESTERVILLE, DELAWARE COUNTY, OHIO**



**Division of Environmental Response and Revitalization  
Central District Office**

**August 2018**

Ohio EPA Division of Environmental Response and Revitalization (DERR) - Remedial Response Program			Decision Document for the Remediation of the Former Kilgore Manufacturing Site Westerville, Delaware County, Ohio		
THE REMEDIAL RESPONSE PROCESS					
(1) Preliminary Assessment & Site Inspection	(2) Remedial Investigation & Feasibility Study	(3) Remedy Selection (Preferred Plan & Decision Document)	(4) Remedial Design	(5) Remedial Action	(6) Remedy Operation, Maintenance & Monitoring

### Ohio EPA Announces Decision Document

On March 16, 2018, Ohio EPA issued a preferred plan that outlined Ohio EPA's preferred alternative to remediate contamination at approximately 40 acres of the former Kilgore Manufacturing, Westerville property (Former Kilgore Manufacturing Site). Ohio EPA held a public meeting on April 24, 2018 at the Austin E. Knowlton Center for Equine Science, 800 N. Spring Road, Westerville to explain the preferred plan. Oral and written comments were accepted at this meeting and during the comment period, which ran from March 16, 2018 to May 8, 2018. Section 8.0 (Responsiveness Summary) of this decision document summarizes the comments and Ohio EPA's responses.

Based on the preferred plan and the consideration of comments received during the comment period, Ohio EPA is issuing this decision document identifying the selected remedial alternative for the cleanup of the contaminated soil, sediment, and ground water at the site. This decision document also provides the rationale for the selected alternative.

Ohio EPA is issuing this decision document in a manner consistent with Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). It summarizes information found in detail in the remedial investigation and feasibility study reports and other documents contained in the administrative record for this site. Ohio EPA encourages the public to review these documents to gain a better understanding of the site, and the past activities that occurred at the site.

**ERAC Appeal Period:** As a final action of the director of Ohio EPA, the decision document may be appealed to the Environmental Review Appeals Commission (ERAC) pursuant to Section 3745.04 of the Revised Code. The appeal must be in writing and set forth the action complained of and the ground upon which the appeal is based. The appeal must be filed with ERAC (30 E. Broad Street, 4<sup>th</sup> Floor, Columbus, OH 43215) within 30 days after notice of the director's action.

**Additional Information:** Available from the Ohio EPA's Central District Office, 50 W. Town Street, Suite 700, P.O. Box 1049, Columbus, Ohio 43216-1049, by contacting Robin Roth, Site Coordinator, at (614) 466-2476, or via email at [robin.roth@epa.ohio.gov](mailto:robin.roth@epa.ohio.gov).

**Additional Information:** Available at the information repository, Otterbein Courtright Memorial Library, 138 W. Main St., Westerville.



## DECLARATION

### SITE NAME AND LOCATION

*Former Kilgore Manufacturing Site  
600 North Spring Road  
Westerville, Delaware County, Ohio*

### STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Former Kilgore Manufacturing Site in Westerville, Delaware County, Ohio, chosen in accordance with the policies of the Ohio Environmental Protection Agency, statutes and regulations of the State of Ohio, and the NCP, 40 CFR Part 300.

### ASSESSMENT OF THE SITE

Metals are the primary contamination detected at the site. If not addressed by implementing the remedial action selected in this decision document, then unacceptable and potential risks to human health and the environment will remain.

The former Kilgore Manufacturing Company manufactured pyrotechnics and ordinance during World War II beginning in 1941 through the 1950s and consumer products and illuminating flares for civilian and military use until 1981. Waste and off-spec products generated during Kilgore's operations were burned or disposed of in areas on-site. In 1962, the former Kilgore Manufacturing property was donated to Otterbein College (now known as Otterbein University).

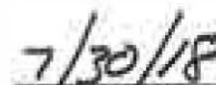
### DESCRIPTION OF THE SELECTED REMEDY

The major components of the selected remedial alternative include excavation and off-site disposal of soil from five areas of concern; excavation and off-site disposal of sediment from two areas of concern and several miscellaneous areas (i.e., hot spots); and land use restrictions prohibiting the use of ground water and preventing residential use.

### STATUTORY DETERMINATIONS

The selected remedial action is protective of human health and the environment, complies with legally applicable state and federal requirements, is responsive to public participation and input and is cost-effective. The remedy uses permanent solutions to the maximum extent practicable to reduce toxicity, mobility and volume of hazardous substances at the site. The effectiveness of the remedy will be reviewed regularly.

  
\_\_\_\_\_  
Craig W. Butler, Director

  
\_\_\_\_\_  
Date

## SUMMARY

The site is owned by the Otterbein University and is in a primarily residential area on approximately 40 acres at 600 N. Spring Road, Westerville, Ohio (see, **Figure 1 Site Location Map** and **Figure 2 Site Layout**). On April 30, 2012, Otterbein University and the United States Department of Defense (U.S. DOD) and the State of Ohio became subject to a judicial consent decree in the U.S. District Court for the Southern District of Ohio Eastern Division to investigate the extent of contamination and develop remedial alternatives to address the problem. The remedial investigation (RI) documented the existence and concentrations of contamination on the site. An evaluation of the risk to human health and the environment was performed. The RI also concluded no unacceptable risks to any off-site receptors. For detailed information on the site investigation, human health and ecological risk assessments, and specifics on the evaluation of alternatives, please see the documents identified in the References section.

Based on the investigations completed at the Former Kilgore Manufacturing Site, contamination was identified that poses unacceptable risk for current and future human health exposures based on direct contact with contaminated soil and sediment on-site. Ecological risks were also identified for the same media (i.e., soil and sediment). Remediation levels (RLs) for the protection of human health are based on an excess lifetime cancer risk goal of  $1 \times 10^{-5}$  (i.e., 1 in 100,000) or a hazard quotient of 1. For additional information on acceptable human health risk goals see <http://www.epa.ohio.gov/portals/30/rules/riskgoal.pdf>. RLs for protection of human health are based on a life-long recreational user. This category was specifically developed for the site and is protective of all land uses except residential (often termed unrestricted). RLs for the protection of ecological receptors are based on several sources, including U.S. EPA ecological soil screening levels, background concentrations, probable effects concentrations, and Ohio EPA sediment reference values. RLs for the protection of human health and ecological receptors are presented in **Table 1: Contaminants of Concern (COCs) / Remediation Levels (RLs)**.

<b>TABLE 1: CONTAMINANTS OF CONCERN (COCs) / REMEDIATION LEVELS (RLs)</b>		
<b>Medium</b>	<b>COC</b>	<b>RL (mg/kg)</b>
<b>Soil: Human Health Direct Contact</b>	<del>Dioxin/Furans</del>	0.00022
	<del>Antimony</del>	78
	<del>Arsenic</del>	23.1
	<del>Lead</del>	400
	<del>Zinc</del>	57,000
<b>Soil and Sediment Ecological Risk</b>	Antimony	78
	Arsenic	23.1
	Barium	500
	Chromium	40
	Copper	80
	Lead	120
	Manganese	780
	Mercury	0.1
	Strontium	390
	Zinc	180



Remedial alternatives were developed to address human health and environmental risks posed by the site. The feasibility study (FS), as amended and approved by Ohio EPA on February 23, 2018, identified the remedial alternatives developed for the site and evaluated each alternative against the seven remedy selection criteria.

This decision document summarizes the remedial alternatives, their evaluations and identifies Ohio EPA's selected remedial alternative. The selected remedial alternative is designed to reduce human health risks to acceptable limits and to protect the environment from chemicals of concern (COCs) in soil and sediment.

The expectations for the selected remedial alternative include:

1. Reduce human health and ecological risks to within acceptable limits from exposure to COCs in soil and sediment.
2. Provide for short- and long-term protection of human health and the environment.
3. Ensure compliance with applicable or relevant and appropriate requirements (ARARs).
4. Strive to be cost-effective and limit expenses to what is necessary to achieve the selected alternative expectations.
5. Provide for development and continued operation and maintenance of monitoring systems.

The major elements of the selected remedial alternative include:

1. Implementation of land use controls (LUCs) to prevent residential land use and require routine inspections and reporting to ensure compliance with land use restrictions.
2. Implementation of LUCs to prohibit the use of ground water.
3. Excavation of contaminated soil at the following areas of concern (AOCs): 1: Unidentified Rectangular Feature, 2: Drainage Ditch Area Near Former Manufacturing Area, 3: Burial Area, 6: Former Experimental Area and 8: Former Burial Trench Area. See Figure 3 Alternative S-12: Excavation of AOCs 1, 2, 3, 6 and 8.
4. Excavation of contaminated sediment at the following AOCs: 1: Unidentified Rectangular Feature, 8: Former Burial Trench Area, and the Miscellaneous Locations (MLs) (e.g., hotspots outside of delineated AOC areas). See Figure 4 Alternative SED-9: Excavation of AOCs 1, 8 and Miscellaneous Locations.
5. Implementation of an operation and maintenance (O&M) plan and agreement that addresses potential asbestos containing material (ACM) at the following AOCs: 5:

Manufacturing Area Former Underground Storage Tank Location, 6: Former Experimental Area and 8: Former Burial Trench Area.

6. Implementation of a risk mitigation plan (RMP) that requires notification of the presence of contaminants to workers, review of construction activities and intrusive work in the AOCs to protect workers through personal protective equipment (PPE) and engineering controls to reduce exposure and ensure proper management of future excavated materials.

## **SITE HISTORY**

Otterbein University and the U.S. DOD are subject to a judicial consent decree in the U.S. District Court for the Southern District of Ohio, Eastern Division, effective April 30, 2012, requiring the completion of an RI and FS for the site.

In 1962, Commercial Credit Corp. donated the 110-acre former Kilgore Farm property to Otterbein College (now known as Otterbein University), after manufacturing operations ceased. Otterbein College accepted the property after the U.S. Army investigated the site, removed several truckloads of waste materials and proclaimed the site "clean." Farming, primarily of soy beans and corn, resumed after 1967 and ceased in 1986. In 1986, all remaining structures on site were razed. From 1962 to 2008, numerous environmental investigations and remedial actions were conducted on-site.

<b>Date</b>	<b>Event</b>
1941 and 1952	The Kilgore Manufacturing Co. used the site for manufacturing in response to the needs of the Chemical Warfare Service, also storing and disposing of explosive and incendiary materials on the site.
1952 and 1962	Kilgore, Inc., used the site for manufacturing flares and fireworks.
Summer 1962	Joliet Arsenal conducted evaluation and cleanup of the Kilgore Manufacturing property.
June 1985	Otterbein College Board member Ernest Fritsche identified flare canisters, which were removed for disposal by the Ohio Fire Marshal's Office and Ordnance Department at Wright Patterson Air Force Base.
Summer 1986	Mr. Fritsche and U.S. Army Corps of Engineers (U.S. ACE) found additional canisters, which were removed for disposal.
Feb. 26, 1988	S.E.A. was hired by the Westerville school district to perform an environmental assessment of a portion of the Kilgore Manufacturing property (no significant problems).
Summer 1988	Otterbein College hired Lama Excavation Company (Lama) to trench property; Lama stated that the property was "clean and safe."



Jan. 24, 1992	U.S. ACE denied the property's eligibility for the Formerly Used Defense Sites Program, a U.S. DOD environmental clean-up program.
Oct. 22, 1992	Ohio EPA performed a preliminary assessment of the Kilgore Manufacturing property.
1992-1997	Lawton & Associates conducted environmental investigations for Keethler, a residential real-estate developer.
November 1996	Wright-Patterson Air Force Base conducted demilitarization of ordnance at the Kilgore Manufacturing property followed by demolition activities.
May 1998	Metcalf & Eddy conducted a Phase I assessment for Keethler.
1999 and 2000	Various field investigations were performed, which included soil borings, ground water wells and test pits.
October 2003	Metcalf & Eddy conducted a Phase II environmental assessment (soil/ground water sampling).
May 2, 2007	Ohio EPA issued an invitation to negotiate administrative orders to Otterbein University to complete an RI and FS at the Former Kilgore Manufacturing Site.
Oct. 24, 2008	Ohio Attorney General Office entered into a consent decree with Otterbein University and the U.S. Department of Justice (representing the U.S. DOD) to conduct an RI and FS at the Former Kilgore Manufacturing Site.

## **SITE CONDITIONS**

The site is partially wooded and overgrown with a mix of trees, dense grasses, shrubs and wetland plants. Approximately 10 acres of the 40-acre site consist of mapped wetlands. Above-ground structures have been razed; however, remnants of gravel roads are still visible. Access to the site is controlled and limited to select Otterbein University personnel and contractors.

The shallow ground water zone is not considered suitable as a domestic water-supply source because the yield is very low. Additionally, the city of Westerville requires, by ordinance, that all residents be connected to the available public water supply.

## **SITE RISKS**

An evaluation of current and potential future risks to human and ecological receptors as the result of exposure to contaminants present at the site demonstrate that environmental media pose, or potentially pose, unacceptable risks sufficient to trigger the need for remedial actions.

**TABLE 2: SOIL COC(s) / MAXIMUM EXPOSURE CONCENTRATIONS**

Media	COC(s)	Maximum Exposure Concentrations (mg/kg)
<b>Soil</b>	Lead	100-1,500 (near surface-surface)
	Dioxins/Dibenzofurans	1.8
	Aluminum	17,000
	Antimony	1,000
	Arsenic	40
	Barium	8,100
	Cobalt	25
	Copper	2,100
	Iron	48,000
	Manganese	2,200
	Strontium	94,000
	Thallium	1.1
	Vanadium	43
	PAHs	0.028

The risk assessment for human health is an estimate of the likelihood of potential health problems occurring if no remedial actions were taken at the site.

#### Soil

Soil COC maximum exposure concentrations are listed in Table 2: Soil COC(s) / Maximum Exposure Concentrations. These concentrations are associated with excess lifetime cancer risk levels due to ingestion of contaminated soil of  $4 \times 10^{-5}$  for potential future residents, which triggers the need for remedial actions. The maximum hazard index (HI) of 48 for all chemicals, which is above the hazard quotient (HQ) of 1, also triggers the need for remedial actions. Note that additional information on risk estimates can be found in the RI report and related documents.

#### Ground Water

The maximum concentration of arsenic in ground water (3 micrograms per liter ( $\mu\text{g/l}$ )), exceeds the adjusted U.S. EPA Regional Screening Level (RSL) for tap water of  $0.045 \mu\text{g/l}$  and triggers the need for evaluation of remedial alternatives. In addition, this concentration is associated with an excess lifetime cancer risk of  $4 \times 10^{-4}$  for future residential use. An HI of 21 was determined with contributions from aluminum, antimony, arsenic, cobalt, iron, manganese, strontium and zinc. An HI of greater than 1 also triggers the need for remedial actions for potable water.

These risks and hazard levels indicate that there is potential risk to children and adults from direct exposure to contaminated soil and ground water, if exposure was to occur. These risk-and-hazard estimates are based in part on reasonable maximum exposure scenarios developed by considering various conservative assumptions about the frequency and duration of an individual's lifetime exposure to the soil and ground water, as well as the toxicity of the COCs.



### Ecological Receptors

An ecological risk assessment (ERA) was conducted as part of the RI at the site. The ERA was conducted to assess potential human and ecological receptors (e.g., animals and plants) at the site. Given the specific nature of site soils and sediment, RIAs were developed that apply to both sediment and soil (see Table 1: Contaminants of Concern (COCs)/Remediation Levels (RLs)). Ecological hazard quotients (EHQs) were estimated by dividing the maximum soil and sediment COC concentrations by the appropriate risk-based screening value.

### REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) were developed for the site to identify goals that a remedy should achieve to ensure protection of human health and the environment. RAOs will be used to define specific performance standards during the remedial design portion of the remedial design/remedial action (RD/RA) phase of the remedial response (clean-up) process. The RD/RA will begin following the issuance of the decision document. The RAOs for the site are listed in Table 3: Remedial Action Objectives.

TABLE 3: REMEDIAL ACTION OBJECTIVES	
Ground Water	
Human Health Risk	RAO 1: Prevent ingestion/direct contact of ground water across the site having a carcinogen (arsenic) concentration that results in a total excess lifetime cancer risk (ELCR) for the contaminant greater than $1 \times 10^{-6}$ .
Human Health Risk	RAO 2: Prevent ingestion/direct contact of ground water across the site having non-carcinogen (aluminum, antimony, arsenic, cobalt, iron, manganese, strontium, and zinc) concentrations that result in a HI greater than 1.
Soil	
Human Health Risk	RAO 3: Prevent ingestion/direct contact with soil located in AOCs 3 and 8 having carcinogen (dioxins/furans and arsenic) concentrations that result in a total ELCR greater than $1 \times 10^{-6}$ .
Human Health Risk	RAO 4: Prevent ingestion/direct contact with soil located in AOCs 1, 2, 3, 6 and 8 having non-carcinogen (antimony, arsenic, copper, iron, lead, manganese and zinc) concentrations that result in an HI greater than 1.
Human Health Risk	RAO 5: Prevent ingestion/direct contact with soil located in AOCs 3, 6 and 8 having potentially containing asbestos-containing material (ACM) that result in a total ELCR risk greater than $1 \times 10^{-6}$ .
Environmental Risk	RAO 6: Prevent exposure to COCs (antimony, arsenic, barium, bismuth, cobalt, copper, lead, manganese, mercury, strontium, and zinc) in soil located in AOCs 1, 2, 3, 6 and 8 that result in environmental hazard quotients (EHQ) greater than 1.
Sediment	
Environmental Risk	RAO 7: Prevent exposure of COCs (antimony, barium, and manganese) from sediments in AOC 18 and the MLs that result in an EHQ greater than 1.

## SUMMARY OF REMEDIAL ALTERNATIVES

A total of 21 remedial alternatives in the FS and two additional remedial alternatives in the FS addendum were considered, as identified in Table 5: Summary of Site Remedial Alternatives. A brief description of the major features of each of the remedial alternatives are listed below Table 4: Summary of Site Remedial Alternatives.

TABLE 4: SUMMARY OF SITE REMEDIAL ALTERNATIVES		
Media	Alternative	Description of Remedial Alternative
<b>Soil</b>		
	S1	No Action
	S2	Land Use Controls (LUCs) Only
	S3	Excavation of AOCs 1, 2 and 3
	S4	Excavation of AOCs 2 and 3
	S5	Excavation of AOCs 1, 2, 3, 6 and 8
	S6	Excavation of AOCs 2, 3, 6 and 8
	S7	Cover AOCs 1, 2 and 3
	S8	Cover AOCs 2 and 3
	S9	Cover AOCs 1, 2, 3, 6 and 8
	S10	Cover AOCs 2, 3, 6 and 8
	S11	Excavation of AOCs 1, 2, 3, 4, 5, 6 and 8
	S12	Excavation of AOCs 1, 2, 3, 6 and 8 (refined EHGs)
<b>Ground Water</b>		
	G1	No Action
	G2	LUCs
<b>Sediment</b>		
	SED1	No Action
	SED2	Risk Management Decision (RMD) for AOCs 1, 5, 8 and Miscellaneous Locations (MLs)
	SED3	Excavation of AOC 1
	SED6	Cover AOC 1
	SED7	Cover AOCs 1, 5, 8 and MLs
	SED8	Cover AOCs 5, 8 and MLs
	SED9	Excavation of AOCs 1, 8 and the MLs (refined EHGs)

### No Action Alternatives:

The "no action alternatives" for soil (S1), ground water (G1) and sediment (SED1) have been included in a single section for efficiency and serve as a baseline for the comparison of other remedial alternatives. Under this alternative, no remedial activities or monitoring are conducted at the site to prevent exposure to contaminated media.

### Soil Alternatives:

No adverse human health or ecological risk is posed by exposure to soil remaining in AOC 7; Cinder Area; therefore, the remedial alternatives do not include AOC 7.

**The second soil alternative (S2)**

The LUCs Only Alternative consists of one major component: LUCs/risk management decision (RMD)/O&M plan and agreement/RMP. The alternative allows for limited recreational and educational uses of the site. Implementation of this component would achieve RAOs 3 through 5 (Table 4). COC concentrations would not change significantly, and RAO 6 would not be met.

**The third soil alternative (S3)**

Excavation of AOCs 1, 2 and 3 consists of two major components: (1) excavation of contaminated soil at AOCs 1, 2 and 3 and (2) LUCs/RMD/O&M plan and agreement/RMP. The alternative allows for educational and recreational uses of the site and meets ecological objectives. Implementation of this component would achieve RAO 6 at AOCs 1, 2 and 3.

**The fourth soil alternative (S4)**

Excavation of AOCs 2 and 3 consists of two major components: (1) excavation of contaminated soil at AOCs 2 and 3 and (2) LUCs/RMD/O&M plan and agreement/RMP. The alternative allows for educational uses of the site and meets ecological objectives. Implementation of this component would achieve RAO 6 at AOCs 2 and 3. The remaining ecological risk would be addressed by an RMD.

**The fifth soil alternative (S5)**

Excavation of AOCs 1, 2, 3, 6 and 8 consists of two major components: (1) excavation of contaminated soil at AOCs 1, 2, 3, 6 and 8 and (2) LUCs/O&M plan and agreement/RMP. The alternative allows for educational and recreational uses of the site and meets ecological objectives. Implementation of this component would achieve RAO 6 at AOCs 1, 2, 3, 6 and 8, and no RMD would be required.

**The sixth soil alternative (S6)**

Excavation of AOCs 2, 3, 6 and 8 consists of two major components: (1) excavation of contaminated soil at AOCs 2, 3, 6 and 8 and (2) LUCs/RMD/O&M plan and agreement/RMP. The alternative allows for educational uses of the site and meets ecological objectives. Implementation of this component would achieve RAO 6 at AOCs 2, 3, 6 and 8.

**The seventh soil alternative (S7)**

Cover AOCs 1, 2 and 3 consists of two major components: (1) covering contaminated soil at AOCs 1, 2 and 3 and (2) LUCs/RMD/O&M plan and agreement/RMP. The alternative allows for educational and recreational uses of the site and meets ecological objectives. Implementation of this component would achieve RAO 6 at AOCs 1, 2 and 3.

**The eighth soil alternative (S8)**

Cover AOCs 2 and 3 consists of two major components: (1) covering contaminated soil at AOCs 2 and 3 and (2) LUCs/RMD/O&M plan and agreement/RMP. The alternative allows for educational uses of the site and meets ecological objectives. Implementation of this component would achieve RAO 6 at AOCs 2 and 3.

**The ninth soil alternative (S9)**

Cover AOCs 1, 2, 3, 6 and 8 consists of two major components: (1) covering contaminated soil at AOCs 1, 2, 3, 6 and 8 and (2) LUCs/O&M plan and agreement/RMP. The alternative allows for educational and recreational uses of the site and meets ecological objectives. Implementation of this component would achieve RAO 6 at AOCs 1, 2, 3, 6 and 8, and no RMD would be required.

**The 10th soil alternative (S10)**

Cover AOCs 2, 3, 6 and 8 consists of two major components: (1) covering contaminated soil at AOCs 2, 3, 6 and 8 and (2) LUCs/RMD/O&M plan and agreement/RMP. The alternative allows for educational uses of the site and meets ecological objectives. Implementation of this component would achieve RAO 6 at AOCs 2, 3, 6 and 8.

**The 11th soil alternative (S11)**

Excavation of AOCs 1, 2, 3, 4, 5, 6 and 8 consists of one major component: (1) excavation of contaminated soil at AOCs 1, 2, 3, 4, 5, 6 and 8. The alternative allows for residential uses of the site and meets ecological objectives. Implementation of this component would achieve RAOs 3 through 6 at AOCs 1, 2, 3, 4, 5, 6 and 8, and no LUCs or RMD would be required. RLA would be met through excavation.

**The 12th soil alternative (S12)**

Excavation of AOCs 1, 2, 3, 6 and 8 (revised EHGs) consists of two major components: (1) excavation of contaminated soil at AOCs 1, 2, 3, 6 and 8 and (2) LUCs/O&M plan and agreement. The volume of contaminated soil removed in AOC 6 would be reduced by half compared to S5, S6, and S11. There would be no adverse risk posed by educational and recreational uses of the site. The excavation would disturb approximately two acres of vegetated ground. Efforts would be made to preserve mature trees to the maximum extent possible. Following excavation, the upland areas would be revegetated. The alternative allows for educational and recreational uses of the site and meets ecological objectives. RAOs 3 through 5 would be achieved immediately upon completion of excavation and implementation of LUCs, and RAO 6 would be achieved upon completion of excavation. Although Alternative S12 would allow contaminants to remain in soil at concentrations greater than residential standards, LUCs would prevent exposure to contaminants. By eliminating the exposure routes, the alternative would comply with risk-based chemical-specific ARARs. Alternative S12 would also comply with all location- and action-specific ARARs. The chemical-, location-, and action-specific ARARs are listed in the FS (Tetra Tech, 2016).

**Ground Water Alternatives:**

**The second ground water alternative (G2)**



LUCs consist of one major component: LUCs/O&M plan and agreement/RMP. RAOs 1 through 2 would be achieved immediately upon implementation of LUCs. Although alternative G2 would allow COCs to remain in ground water, LUCs would prevent exposure to COCs. Alternative G2 would also comply with all location and action-specific ARARs.

#### **Sediment Alternatives:**

There were no sediments in AOCs 3 and 6; therefore, the remedial sediment alternatives do not include these AOCs. However, there are MLs areas located near AOCs 3, 7 and 8.

Based on the revised ecological RLs (FS addendum 2017) and risk management from additional site evaluation, there is no unacceptable risk for ecological receptors in AOC 5. Therefore, the initial sediment alternatives listed below were eliminated for comparison.

- Alternative SED4 Excavation of AOCs 1, 5, 8 and MLs
- Alternative SED5 Excavation AOCs 5, 8 and MLs
- Alternative SED7 Cover AOCs 1, 5, 8 and MLs
- Alternative SED8 Cover AOCs 5, 8 and MLs

#### **The second sediment alternative (SED2)**

RMD for AOCs 1, 5, 8 and MLs SED-2 consists of two major components: (1) RMD for AOCs 1, 5 and 8 and the MLs and (2) LUCs/O&M plan and agreement/RMP. Alternative SED2 would allow contaminants to remain in sediment at concentrations greater than RLs based on a RMD. LUCs would prevent exposure to contaminants for the protection of human health. However, LUCs would not be protective for ecological receptors.

#### **The third sediment alternative (SED3)**

Excavation of AOC 1 consists of three major components: (1) excavation of contaminated sediment at AOC 1, (2) RMD for AOCs 5 and 8 and the MLs; and (3) LUCs/O&M plan and agreement/RMP. The alternative meets ecological objectives.

#### **The sixth sediment alternative (SED6)**

Cover AOC 1 consists of three major components: (1) covering contaminated sediment at AOC 1; (2) RMD for AOCs 8 and the MLs; and (3) LUCs/O&M plan and agreement/RMP. The alternative meets ecological objectives. Implementation of this component would achieve RAO 7 at AOC 1.

#### **The ninth sediment alternative (SED9)**

Excavation of AOCs 1, 8 and the MLs (without wetland replacement) consists of one major component: (1) excavation of contaminated sediment at AOCs 1 and 8 and the MLs. The excavation would disturb approximately 0.1 acres of wetland. Efforts would be made to preserve mature trees to the maximum extent possible. Any disturbed wetland areas would be allowed to naturally recover. The alternative meets ecological objectives. RAO 7 would be achieved upon completion of excavation and implementation of the decision document. By removing all sediment with concentrations greater than RLs, the alternative would comply with risk-based chemical-specific ARARs.

## PUBLIC INPUT

Ohio EPA received comments from interested parties at the public meeting held April 24, 2018, at the Austin E. Knowlton Center for Equine Science and during the associated public comment period, which ran between March 16, 2018, and May 8, 2018. Those comments and Ohio EPA's responses are included in Appendix A Response to Comments of this decision document.

## EVALUATION OF ALTERNATIVES

A summary of the evaluation of the site remedial alternatives and the costs associated with each alternative is included in Table 5: Evaluation of Site Remedial Alternatives.

TABLE 5: EVALUATION OF SITE REMEDIAL ALTERNATIVES								
Remedial Alternatives	Threshold Criteria		Balancing Criteria				Modifying Criteria	
	1. Protects Human Health & Environment	2. Compliance with ARARs	3. Long-Term Effectiveness	4. Reduces T, M and/or V by Treatment	5. Short-Term Effectiveness	6. Implementable	7. Costs	8. Community Acceptance
<b>Soil</b>								
S1 - No Action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	\$53,000	<input checked="" type="checkbox"/>
S2 - LUCs Only	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	\$198,000	<input type="checkbox"/>
S3 - Excavation of AOCs 1, 2 and 3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	\$1,082,000	<input type="checkbox"/>
S4 - Excavation of AOCs 2 and 3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	\$898,000	<input type="checkbox"/>
S5 - Excavation of AOCs 1, 2, 3, 6 and 8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	\$1,383,000	<input type="checkbox"/>
S6 - Excavation of AOCs 2, 3, 6 and 8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	\$1,220,000	<input type="checkbox"/>
S7 - Cover AOCs 1, 2 and 3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	\$899,000	<input type="checkbox"/>
S8 - Cover AOCs 2 and 3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	\$687,000	<input type="checkbox"/>
S9 - Cover AOCs 1, 2, 3, 6 and 8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	\$851,000	<input type="checkbox"/>
S10 - Cover AOC 2, 3, 6 and 8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	\$739,000	<input type="checkbox"/>
S11 - Excavation of	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	\$4,485,000	<input type="checkbox"/>



AOCs 1, 2, 3, 4, 5, 6, and 8								
<b>S12 – Excavation of AOCs 1, 2, 3, 6 and 8 (refined EHGs)</b>	■	■	■	■	■	■	\$1,263,000	■
<b>Ground Water</b>								
<b>G1 – No Action</b>	□	□	□	□	□	■	\$53,000	□
<b>G2 – LUCs</b>	■	■	■	□	■	■	\$144,000	■
<b>Sediment</b>								
<b>SED1 – No Action</b>	□	□	□	□	□	■	\$53,000	■
<b>SED2 – RMD for AOCs 1, 5, 8 and MLs</b>	■	■	■	□	■	■	\$144,000	□
<b>SED3 – Excavation of AOC 1</b>	■	■	■	■	■	■	\$363,000	□
<b>SED6 – Cover AOC 1</b>	■	■	■	□	■	■	\$391,000	□
<b>SED9 – Excavation of AOCs 1, 8 and MLs (refined EHGs)</b>	■	■	■	■	■	■	\$362,000	■
■ = Fully Meets Criteria      ■ = Partially Meets Criteria      □ = Does Not Meet Criteria								

## SELECTED REMEDIAL ALTERNATIVE

Ohio EPA's selected remedial alternative for the Former Kilgore Manufacturing site is a combination of Soil Alternative S12 Excavation of AOCs 1, 2, 3, 6 and 8 (refined EHGs), Ground Water Alternative G2 LUCs and Sediment Alternative SED9 Excavation of AOCs 1 and 8 and the MLs (refined EHGs). This combination employs LUCs to restrict the use of the site and relies on an excavation remedy to remove contaminated soil and sediment to RLs. This remedy also requires an O&M plan, containing an RMP to protect construction/excavation workers from potential contact with contamination remaining on site.

The engineering and institutional controls on which the selected alternative relies are commonly used strategies that have been widely applied at other sites with soil, sediment and ground water contamination.

The selected alternative requires Otterbein University to be a party to environmental covenant(s) (i.e., LUC), which will limit the use of the site to recreational and/or educational purposes and prohibit the use of ground water for any purpose other than sampling and analysis to monitor contamination. Ohio Revised Code (ORC) § 5301.85 and ORC § 5301.90 prohibit the unilateral removal of the environmental covenant or any activity and use limitations by current or future property owners.

The selected remedial alternative will also rely on transporting and disposing the excavated material off site and determining the requirements for proper waste transport and disposal. The existing data suggest the excavated soil and sediment will be non-hazardous. Sediment excavations would be conducted to control the discharge of suspended solids and possible release of metals. Specific requirements to be identified in the RA work plan will be implemented to prevent or limit dust generation, cross contamination and any exposure to nearby residents and receptors between the site and final disposal area to the extent practicable. Potential controls include soil watering, silt curtains and other settling devices, dewatering during excavation or temporary water diversion barriers and pumping and covered transport trucks.

Efforts would be made to preserve mature trees to the maximum extent possible. This would require additional effort for precise excavation and possibly hand excavation to avoid damage to the mature trees.

Routine inspections for LUC enforcement and other components of the O&M plan will be conducted as part of the existing site O&M program. For example, inspections can confirm the land use does not include residential development or that ground water is not being used as a potable source.

Based on available information, it is Ohio EPA's judgment that the selected remedial alternative best satisfies the criteria defined in Table 6: Evaluation of Site Remedial Alternatives

### **Soil Remedial Alternative (S-12)**

#### **Performance Standards:**

- 1) The excavation of soil in AOCs 1, 2, 3, 6 and 8 will continue until the remaining soil meets human health-based standards and ecological RLs. Confirmatory samples will be collected per an approved work plan to ensure removals are complete. The performance standard is met when confirmatory sample analyses demonstrate the remaining soil concentrations meet the remediation levels or as modified during RD, and the construction completion report is approved by Ohio EPA. RAOs 3, 4 and 6 are achieved without meeting Performance Standards 2 and 3.
- 2) RAOs 3 and 4 will be achieved when the environmental covenant describing the applicable activity and use limitations for the property is recorded and maintained, until such time that LUCs are no longer necessary. RAO 5 will be achieved when the environmental covenant is recorded and maintained, until such time that ACM is demonstrated to meet acceptable risk (and/or visual) standards. The activity and use limitations will prescribe the allowable land use, which will apply to the property, inclusive of AOC 4.
- 3) Upland vegetation will be restored, monitored and managed to ensure establishment following soil excavation. The performance standard is met when the post-remediation restoration activities are completed and approved by Ohio EPA.

## **Groundwater Remedial Alternative (G-2)**

### **Performance Standard:**

- 1) An environmental covenant to prohibit ground water extraction and use will be filed with the Delaware County Recorder's Office within 90 days of the initiation of the approved remedial action plan. The performance standard is met by continued compliance with the prohibition, such that the RAOs 1 and 2 are met. However, the prohibition will be no longer necessary when it is demonstrated that the ground water underlying the property meets human health standards at the time and is approved by Ohio EPA.

## **Sediment Remedial Alternative (SED9)**

### **Performance Standard:**

- 1) The excavation of sediment in AOCs 1, 8 and the MLs will continue until the remaining sediments meet RLs. Confirmatory samples will be collected per an approved work plan to ensure removals are complete. The performance standard is met when confirmatory sample analyses demonstrate that the remaining sediment concentrations meet the remediation levels or as modified during remedial design and the construction completion report is approved by Ohio EPA.

The environmental covenant(s) will provide the legal mechanism necessary to satisfy use restrictions (i.e., LUCs) for property on-site. Ohio Revised Code (ORC) § 5301.85 and ORC § 5301.90 prohibits the unilateral removal of the environmental covenant or any activity and use limitations by current or future property owners.

## **DOCUMENTATION OF SIGNIFICANT CHANGES**

Ohio EPA received comments on the Preferred Plan, but no significant changes have been made to the selected remedial alternative. The Agency's responses to the comments are provided in Appendix A Response to Comments of this decision document. The responses include acknowledgement that multiple environmental covenants can be entered into so long as they are consistent with the use restrictions required in the Decision Document.

## **RESPONSIVENESS SUMMARY**

A public meeting/hearing was held on April 24, 2018, to present the Agency's preferred plan for the Former Kilgore Manufacturing site and to solicit public comment. Additionally, oral and written comments were accepted at this meeting and associated comment period, which ran from March 18, 2018, to May 8, 2018.

Ohio EPA received comments at the public meeting/hearing and/or during the public comment period. A stenographic record of the public hearing portion of the meeting is provided in Appendix B. For those comments received by the Agency, a summation of each comment (in *italics*) followed by the Agency's response (in plain text) is provided in Appendix A.

## **REFERENCES**

Ohio Environmental Protection Agency (EPA). September 1, 2006. Generic Statement of Work for Conducting Remedial Investigation and Feasibility Studies. Division of Emergency and Remedial Response. Remedial Response Program.

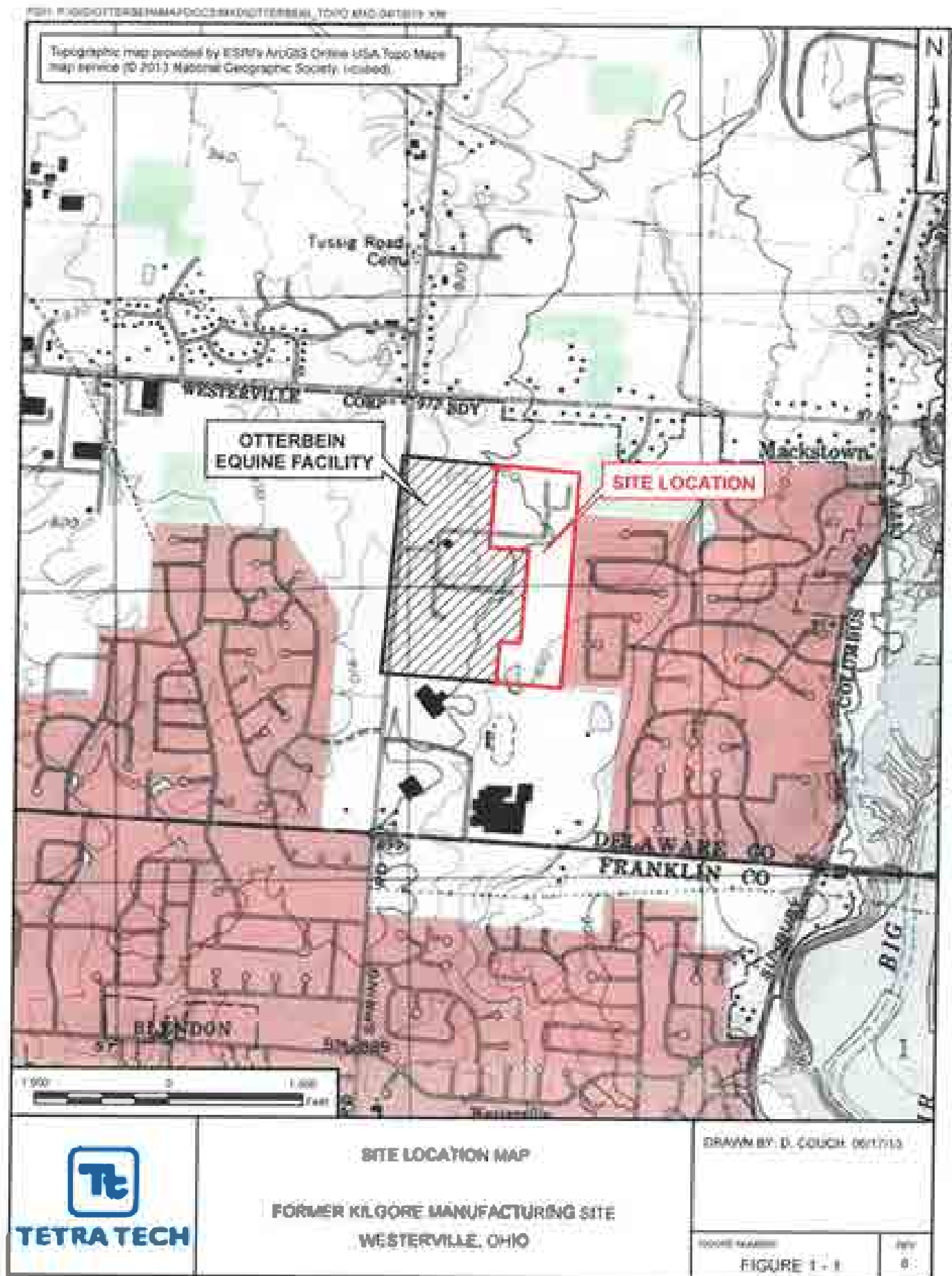
Tetra Tech, September 2014. Remedial Investigation Report for the Former Kilgore Manufacturing Company Property, Westerville, Ohio.

Tetra Tech, February 2015. Revised Refinement of the Remedial Action Objectives Technical Memorandum, Former Kilgore Manufacturing Property RI/FS.

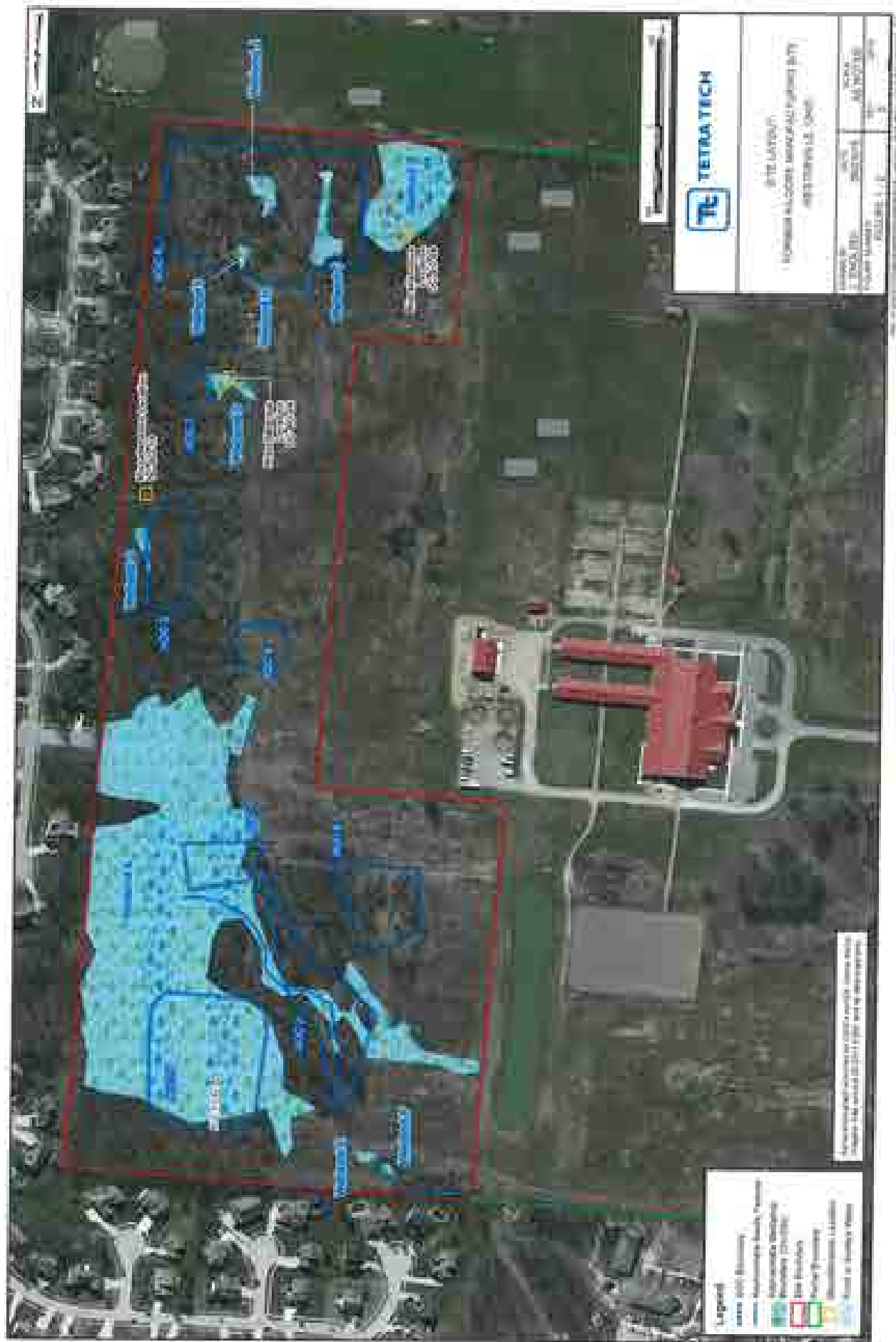
Tetra Tech, July 2016 (revised from May 2016). Feasibility Study Report. Former Kilgore Manufacturing Property RI/FS.

Tetra Tech, December 2017. Feasibility Study Report Addendum, Former Kilgore Manufacturing Property, Westerville, Ohio.

## FIGURES













## **APPENDICES**

## APPENDIX A



### **Division of Environmental Response and Revitalization Response to Comments**

**Project: Preferred Plan for the Remediation of the Former Kilgore Manufacturing Site,  
600 North Spring Road, Westerville, Delaware County, Ohio  
Ohio EPA ID #: 121-001187-014**

#### **Agency Contacts for this Project**

Division Contact: Robin Roth, DERR-CDO, (614) 468-2476, [Robin.roth@epa.ohio.gov](mailto:Robin.roth@epa.ohio.gov)  
Public Involvement Coordinator: Kristopher Weiss, (614) 644-2180, [Kristopher.weiss@epa.ohio.gov](mailto:Kristopher.weiss@epa.ohio.gov)

Ohio EPA held a public hearing and/or comment period on April 24, 2018, regarding the March 16, 2018, Preferred Plan. This document summarizes the comments and questions received at the public hearing and/or during the associated comment period, which ended on May 8, 2018.

Ohio EPA reviewed and considered all comments received during the public comment period. By law, Ohio EPA has authority to consider specific issues related to protection of the environment and public health. Often, public concerns fall outside the scope of that authority. For example, concerns about zoning issues are addressed at the local level. Ohio EPA may respond to those concerns in this document by identifying another government agency with more direct authority over the issue.

In an effort to help you review this document, the questions are grouped by topic and organized in a consistent format.

**Comment 1:** It appears that the desired solution involves extensive excavation of soil from (Area of Concern) AOC 8. How much surface area will be affected by this work and how much additional damage/removal of trees and growth will be required for site access?

**Response 1:** AOC 3 has the largest estimated soil removal volume of 1,851 cubic yards (cy). The depth of contaminated soil ranges from 1 to 5 feet below the ground surface. AOC 3 has an estimated removal area of 100 feet x 100 feet to a depth of 5 feet. AOC 8 estimate is 345 cy (330 cy soil plus 15 cy sediment). AOC 8 has estimated removal areas of approximately 140 feet x 60 feet and 5 feet x 10 feet both to a depth of 1 foot. It should be noted that the final remediation volumes and sizes will be clarified during the remedial design and/or removal phase using confirmation sediment and soil samples. Care will be taken to avoid large-diameter, healthy trees to minimize tree removal as required by local ordinance. As with all

removals considered in the preferred remedy, effort will be made to preserve mature trees to the maximum extent practicable. In addition, it is likely that much of the work will be done from the Otterbein University/interior property and will likely not be seen from the northern boundaries and residential homes. Detailed plans are required to be submitted for Ohio EPA review and approval. Both removals are not particularly large, and the final volumes and removal areas will not significantly modify or change any of the drainage or surface water storage capacity on the property.

**Comment 2:** Portions of the properties wetlands sit in linear AOC 8. Will the wetlands be restored after this work or is wetland restoration to happen in a different location?

**Response 2:** Natural recovery of the wetlands is planned for all wetland/sediment removals. No on- or off-site compensation or mitigation of wetland habitat is required or deemed necessary by Ohio EPA, based on the small areas of excavation and the lower wetland habitat quality throughout the site. Upland soil excavations will be filled with clean fill to the original grade and will be restored by seeding and covering the area until the plants are established. Although not specified in the preferred plan, native plants are the desired types to be seeded following soil removal, replacement, and regrading. Approximately 15 cy of contaminated sediment will be removed from AOC 8. The depth of sediments to be removed is approximately 1 foot. The preferred plan does not contemplate wetland restoration. However, this will depend on wetland permit requirements if any.

**Comment 3:** What is the possible time-line for this work to take place?

**Response 3:** The excavation phases of work are each estimated to take approximately 6 months to complete. The consultant estimates that work may begin in 1 to 3 years.

**Comment 4:** In recent heavy rains we have seen, for the first time to us, surface water from the Kilgore property migrating into the rear lawns of the area around us. Will any of this work address the containment of contaminated ground water?

**Response 4:** Storm water protection measures to prevent off-property migration of surface water during the soil removal work will be included in the remedial design phase of this project. There should be no reason to contain contaminated ground water, since the proposed site excavations are relatively surficial and therefore not likely to encounter ground water.

**Comment 5:** Over the years there have been, as you know, many site evaluations/inspections/cleanups of this property. It has been deemed safe and unsafe. What guarantees can a neighboring property owner have that this time will resolve the concern once-and-for-all?

**Response 5:** This comprehensive remedial investigation has taken all previous efforts into account and is designed to remove residual contamination following the historic removals. While this will not result in unrestricted or residential use of AOCs at the site, continued annual reporting of ground water use restrictions will be required. Ohio EPA will continue to enforce the ongoing components of the remedy. Ohio EPA considers this investigation comprehensive and the final remedy permanent.

**Comment 6:** Commenter agrees with the removal plan except for flooding issue and would like to see a contingency plan to address flooding in the area.

**Response 6:** Storm water protection measures to prevent off-property migration of surface water during the soil removal work will be included in the remedial design phase of this project. Should a catastrophic flooding event occur during the soil removal work, Ohio EPA will assess the situation and require additional work if necessary. The consent decree will have a section on additional work that can be invoked by Ohio EPA to address work required by unforeseen situations.

**Comment 7:** A commenter asked if there would be a meeting prior to the start of field activities.

**Response 7:** While such a meeting is not required by the state process, a meeting may be held by Otterbein University as they have done during previous stages of the process.

**Comment 8:** Mackstown should be MAXTOWN.

**Response 8:** This is correct based on today's spelling of the road name as Maxton Road. However, the base map appears to be a published U.S. Geological Survey (USGS) topographic map with the name of Mackstown township. The map was not revised. (See source for slide 5, which contains Tetra Tech's Figure 1-1 Site Location Map from the Feasibility Study Report Addendum.)

**Comment 9:** Tussig should be TUSSIC.

**Response 9:** This is correct based on today's spelling of the road name. However, the base map appears to be a published USGS topographic map with the name of Tussig Road Cem. To the north of Maxtown Road, Tussic Road is now known as Tussic Street Road. To the south of Maxtown Road, Tussic Road is now known as N. Spring Road. The map was not revised. (See source for slide 5, which contains Tetra Tech's Figure 1-1 Site Location Map from the Feasibility Study Report Addendum.)

**Comment 10:** If the flooding comes back, because I believe we're now fixed, who do we respond to because it's the EPA that's doing the work back there or at least the agency?

**Response 10:** Ohio EPA is providing oversight of the work but is not performing the work. The work will be performed by Otterbein University through its contractor(s). The soil removal work will neither contribute to nor mitigate flooding concerns. Residents who are experiencing problems with flooding should work with the city of Westerville to address those issues.

**Comment 11:** The Agency received comments from a citizen opposed to the preferred plan.

**Response 11:** The comments are noted.



**Comment 12:** What type of recreation will be allowed on the property?

**Response 12:** Details on recreational use will be defined in the proposed environmental covenant, which will be part of the future consent decree. The types of recreational activities will also be determined in large part by Otterbein University, the owner of the site.

**Comment 13:** Define not for residential use. What other usages will be allowed in the area?

**Response 13:** Residential buildings within the site would be prohibited through the recording and enforcement of the proposed environmental covenant. The property owner has indicated a desire to use the property as a recreational and educational area in the future.

**Comment 14:** ... (We would like to ensure that any delineated wetlands are clearly designated with visible signage markers, whatever is appropriate so that public and Otterbein maintenance staff clearly know what is allowed and not allowed to be entered and touched)

**Response 14:** This request for visibly marking wetlands will be considered later in the process during the remedial design phase of work. The wetlands on the property were mapped during earlier investigations.

**Comment 15:** May we see an inventory of the plants and aquatic and QA/QI that has been collected and assessed?

**Response 15:** Yes, Ohio EPA can provide copies of the requested documents. Much of this information is included in Tetra Tech's Dec. 6, 2012, Remedial Investigation/Feasibility Study Work Plan as amended (see Attachment B Wetland Reports). Ohio EPA will add the revised 2017 ORAM assessment (Kigore Manufacturing – Wetland Ecology Notes) and a copy of the Oct. 3, 2007, Jurisdictional Waters and Isolated Wetland Report for the Otterbein College Equine Facility Site by MAD Scientist & Associates, LLC, to the public repository documents. In response to this inquiry, these documents were provided on May 14, 2018.

**Comment 16:** ... (O)ur concern is again making sure we have a thorough understanding of what educational access will be allowed and how that will be done, if it's going to be a boardwalk or if you're going to build a driveway to it, we would have concern regarding that.

**Response 16:** See Comment/Response 20. Educational uses will be defined by Otterbein University. It is unlikely that the areas with wetlands would be suitable for construction of any permanent structures such as a driveway. Any proposed future uses will adhere to the environmental covenant and be approved by Ohio EPA.

**Comment 17:** Otterbein has no interest in destroying any wetlands and does not intend to use the site for residential purposes.

**Response 17:** Ohio EPA concurs with these statements. The remedy will need to comply with federal and state wetland requirements. Wetlands that will be remediated or near soil that will be excavated should be healthier over time due to the removal of contaminated media (i.e., soil and sediment).

**Comment 18:** would like the opportunity to review the land use covenants before they're approved. I would prefer that be shared with all residents. I do live in The Landings.

**Response 18:** Ohio EPA is considering this request. Any environmental covenant is a public document upon execution.

**Comment 18:** Long-term, the city of Westerville has a need to extend the water main across the property. It is already extended to the eastern fence line here and there's a stub on Sundury Lake. Long-term, we would like to make that connection for the benefits of our residents and drinking water quality. If there's an opportunity to coordinate with any potential remediation for us to install that water main, we would appreciate a seat at the table to see if that's possible.

**Response 19:** While we can review proposed locations of future water lines with respect to location environmental contamination on the property, this request is beyond the scope of Ohio EPA's Division of Environmental Response and Revitalization Remedial Response (DERR) Program. We suggest you work directly with Otisbein University and the applicable programs at Ohio EPA on extending municipal water lines across the property. DERR will provide any assistance it can in its remediation oversight role.

**Comment 20:** I would encourage you to use the Auditor's website and just send a mass mailer using addresses instead of the sign-up lists to any and all nearby property owners within 500 or 1,000 or 1,500 feet. People come and go, they move, they leave, they sell the house. And my comment is that when I prepare mailers, I use an address list. I try not to use just a sign-up list from something that's been going on for 15 or 20 years so many of my other neighbors and our other neighbors can be notified. I would argue that just using a sign-up list is not doing your due diligence, and I would request and encourage you to use some sort of mapping database or address list as opposed to a sign-up list.

**Response 20:** Ohio EPA is required to announce our public hearings and comment periods with a public notice in the newspaper of largest circulation in the facility's location and in Ohio EPA's weekly review, which is available on the Agency's website. Ohio EPA also extends a courtesy by mailing citizen advisories to people on our interested parties lists for different sites and counties. The cost and time associated with maintaining a mailing list with all residents within a certain distance from all of the facilities or sites that we regulate and conduct hearings for in Ohio would not be feasible.

**Comment 21:** My biggest concern, my question is, is it worth it? The stakes are very high. I worry about -- especially if you're digging in the summertime, I worry about dust and so forth, it's going to come in my house. It's going to be everywhere. You can't help it because I'm right on top of one of those sites. So my concern is keeping myself safe, my family safe and my pets safe.

**Response 21:** Ohio EPA appreciates your concerns and will require measures to control dust generated during the remedial excavation activities. The nearest remedial excavation is located approximately 450 feet from your 680 Surf Court property. There is a large Withland A with trees between your property and the nearest excavation activities; therefore, depending on the

time of year and condition of the vegetative cover, the remedial activities might not be visible from your property line.

**Comment 22:** I think the site should be capped.

**Response 22:** Capping remedial alternatives were evaluated in the preferred plan and were not selected as the preferred alternative because they are not as permanent of a remedy as excavation and removal. Cost of the capping alternatives and excavation and off-site disposal also supported the selected remedy. Caps require long-term maintenance and periodic inspections and repair.

**Comment 23:** I think the site can be used – I understand they want to use it for trails or horses which would be great to have those things back there, but I just think if there's animals already back there, why isn't it safe for the horses and the people wandering back there?

**Response 23:** Unlike horses that would be only minimally exposed to site contamination through occasional riding or even pasturing, organisms living in contaminated soil and sediment (e.g., plants and soil invertebrates) have much greater exposure throughout their life cycles. Ecological risk from contaminated soil and sediment was potentially identified for plants and soil invertebrates in some AOCs and is one of the risk drivers for the remedial action.

**Comment 24:** It just seems like it's too big of a risk for all the people, my neighbors and myself, and we all back up to this. It's a very worrisome thing. I guess that's my concern. Just let us know what is going to happen and let us have some feedback.

**Response 24:** A public notice of the comment period was provided to receive feedback from interested parties on the preferred plan. The next step is to issue a decision document, which is a final action of the director of Ohio EPA and is subject to appeal. This document with the final remedy will also be public noticed.

**Comment 25:** I favor the S1, G1, and SED1 plans of NO ACTION. My concern is runoff and airborne sediment from disturbing the ground soil. I would favor other less invasive forms of remediation or leaving the site undisturbed.

**Response 25:** The no action remedial alternatives were evaluated in the preferred plan and did not meet the threshold criteria. The no action alternatives do not provide for the protection of human health and ecology. In addition, the limited amount of damage to ecological habitat during excavation would naturally recover and would no longer be a threat to ecological receptors.

**Comment 26:** The property located outside of this designated area does not require the application of (LUCs). Should any additional area be detected during the upcoming Remedial Design Investigation be determined to require remedial action, the (LUCs) would be adjusted to conform to those areas. Ground water (LUCs) would apply to the entire 40(-)acre property, as shown on Figure 2-18 of the Feasibility Study.

**Response 26:** Traditionally this is not how environmental covenants are designed. An option that has been used in the past is to designate the AOC and miscellaneous areas within the



site-wide environmental covenant. Discussions regarding the LUCs will continue during the drafting of the environmental covenant(s). It can be assumed that more than one environmental covenant can be used so long as the use restrictions are consistent with what the Decision Document requires.

**End of Response to Comments**

**APPENDIX B**

**EPA – April 24<sup>th</sup> Hearing - Transcript**

BEFORE THE OHIO ENVIRONMENTAL PROTECTION AGENCY

---  
In the Matter of the :  
Public Hearing Regarding :  
Former Kilgore :  
Manufacturing Site :  
Preferred Plan. :  
---

PUBLIC HEARING

at the Austin E. Knowlton, Center for Equine Science,  
600 North Spring Street, Westerville, Ohio, called at  
6:00 p.m. on Tuesday, April 24, 2018.  
---

FRALEY, COOPER & ASSOCIATES  
222 East Town Street, Second Floor  
Columbus, Ohio 43215-4620  
(614) 228-0018 (800) 852-6163  
---

1 APPEARANCES:

2 Ohio Environmental Protection Agency  
3 By Kristopher Weiss  
4 Public Involvement Coordinator  
5 Public Interest Center  
6 Columbus, Ohio 43216

7 On behalf of the Ohio Environmental  
8 Protection Agency.

9 ALSO PRESENT:

10 Robin Roth, Division of Environmental  
11 Response and Revitalization  
12 Brian Tucker, DERR  
13 Kurtis Harlocher, DERR

14 - - -

1 Tuesday Evening Session,

2 April 24, 2018.

3 ---

4 MR. WEISSE: We're on the record now. The  
5 purpose of this public hearing is to accept comments  
6 on the official record regarding Ohio EPA's preferred  
7 clean-up plan for the former Kilgore Manufacturing  
8 site here in Westerville.

9 Ohio EPA published a public notice to  
10 announce the hearing and public comment period, and  
11 this was in newspapers in the area. This notice was  
12 also posted on Ohio EPA's website and in Ohio EPA's  
13 Weekly Review. The Weekly Review is a publication  
14 that lists all agency activities and actions that are  
15 taking place around the State of Ohio, and these are  
16 listed by county.

17 Written and oral comments received as  
18 part of the official record will be reviewed by Ohio  
19 EPA before the Director makes a final decision. To  
20 be included in the official record, written comments  
21 must be received by the close of business on Tuesday,  
22 May 2nd, 2018.

23 Any comments that we receive after this  
24 time may be considered as time and circumstances

1 allow, but they will not be part of the official  
2 record for this hearing. If you would like to submit  
3 written comments, you can mail them to Robin Roth at  
4 Ohio EPA, Central District Office, Post Office Box  
5 1049, Columbus, Ohio, 43216-1049. You can also  
6 e-mail them to Robin.roth@epa.ohio.gov.

7 Please remember that all comments  
8 received in writing, all written comments that are  
9 turned in to me this evening and all verbal comments  
10 that are given tonight will receive the same  
11 consideration.

12 If in your testimony you have any written  
13 speeches, any maps or photographs or other physical  
14 evidence, please submit it to me as part of the  
15 official record. If you choose not to submit this  
16 information, Ohio EPA cannot ensure the accuracy of  
17 your testimony. Again, we do have a court reporter  
18 here this evening to make a record of our  
19 proceedings.

20 Questions and comments made during the  
21 public hearing and during the public comment period  
22 will be responded to in a document known as a  
23 Response To Comments. After considering the  
24 recommendations of staff and public comments

1 submitted, the Director may choose to approve or  
2 modify the preferred plan. Once the Director makes a  
3 final decision, that decision and the Response to  
4 Comments will be made available to anyone who  
5 requests it.

6           **Director's** final actions may be appealed  
7 to the Ohio Environmental Review Appeals Commission,  
8 also known as ERAC. This Board is separate from Ohio  
9 EPA and it reviews cases in accordance with Ohio's  
10 environmental rules and regs. Any ERAC decision can  
11 be appealed to the Franklin County Court of Appeals.  
12 And any order of the Court of Appeals is appealable  
13 to the Supreme Court of Ohio.

14           Each person may testify only once and  
15 speak for five minutes, so I'll ask that you use your  
16 time wisely and that you are respectful of others  
17 providing their comments and questions. There will  
18 be no cross-examination of speakers or of Ohio EPA  
19 representatives in this hearing.

20           These hearings afford citizens the  
21 opportunity to provide input and we are, therefore,  
22 unable to answer questions during your testimony.  
23 The Hearing Officer or another Ohio EPA  
24 representative may ask clarifying questions of



1 speakers just to ensure that the record is as  
2 complete and accurate as possible.

3 And, once again, if you have a question  
4 that was not addressed during the question and answer  
5 session, please free to ask it on the record and we  
6 will respond to those concerns in the response to  
7 comments document.

8 So with that, we will receive testimony.  
9 And as I said before, we'll just do this by a show of  
10 hands. When I call on you, please state your name,  
11 spell it for the record, and if you could stand and  
12 speak in her direction so that the court reporter can  
13 hear you, that would be great.

14 So who would like to provide testimony  
15 this evening?

16 Yes, sir.

17 MR. RITZENTHALER: Mark Ritzenthaler.

18 MR. WEISS: Can you please state and  
19 spell your last name.

20 MR. RITZENTHALER: Mark Ritzenthaler.  
21 Last name is spelled R-I-T-Z-E-N-T-H-A-L-E-R. Am I  
22 good to go?

23 MR. WEISS: Yes, sir.

24 MR. RITZENTHALER: My property backs up

1 to one of the areas of concern. And Robin, as you  
2 well know, we've had all kind of flooding back there.  
3 Over the last two years, it's gotten infinitely  
4 better. We just had two inches in 24 hours. Water  
5 traveled through and instead of sitting literally  
6 feet deep for months on end, in two hours it traveled  
7 down the food chain and out. It's gotten much, much  
8 better.

9           You're going to go back to the wetlands  
10 and you're going to be doing some digging and moving  
11 things around. And everything that I've looked at,  
12 not just here but online, I haven't seen a  
13 contingency plan for if the flooding comes back.

14           I heard tonight, Mr. Weiss, you say that  
15 what you're getting ready to do won't contribute to  
16 the flooding. In the decade that I have dealt with  
17 the flooding back there, I heard that at least  
18 monthly and the flooding got worse.

19           So my question would be if the flooding  
20 comes back, because I believe we're now fixed, who do  
21 we respond to because it's the EPA that's doing the  
22 work back there or at least the agency? And do you  
23 have a contingency plan for when things go -- or if  
24 things go awry? I'm hoping for the best here.

1           MR. WEISS: Anything else? Thank you for  
2 your testimony.

3           Would anybody else like to testify this  
4 evening?

5           Yes, sir.

6           MR. MACHUTA: My name is Max Machuta.  
7 Our property -- I'm here with my wife Suzette --

8           MR. WEISS: Can you spell your last,  
9 please.

10          MR. MACHUTA: I'm sorry, it's Machuta,  
11 M-A-C-H-U-T-A. We are neighbors of Otterbein. I  
12 want to thank this panel and I want to thank  
13 Otterbein for the professionalism that you have  
14 conducted these studies and these presentations. A  
15 lot of time, effort and money has gone into doing  
16 this and that is not lost on us.

17          That being said, I believe that there are  
18 still too many questions unanswered and questions  
19 that cannot be answered that would prevent me from  
20 endorsing the recommendation. For that reason, I  
21 strongly oppose the recommendation that you have put  
22 together.

23          MR. WEISS: Thank you very much.

24          Anybody else like to testify this

1 evening?

2 Yes, sir.

3 MR. ROSEMAN: My name is David Roseman,  
4 R-O-S-E-M-A-N. I'm a Board member with the Friends  
5 of Alum Creek and Tributaries otherwise known as  
6 FACT, F-A-C-T. We support and favor the diligent  
7 clean-up of any designated polluted waterway and  
8 lands to improve the health and quality for the  
9 citizens, republic and the ecology.

10 Question: What type of recreation?

11 Question: Define not for residential  
12 use. What other usages will be allowed in the area?  
13 There's a big difference between passive recreation  
14 and nonpassive recreation. There's a big difference  
15 between having a baseball field and having a natural  
16 pervious hiking trail or a 12-foot wide paved shared  
17 use path.

18 So we would like to find out more  
19 information regarding that, and we would like to see  
20 as less impact as possible to the designated  
21 delineated wetlands.

22 Along with that, we would like to ensure  
23 that any delineated wetlands are clearly designated  
24 with visible signage markers, whatever is appropriate

1 so that public and Otterbein maintenance staff  
2 clearly know what is allowed and not allowed to be  
3 entered and touched.

4 Question: May we see an inventory of the  
5 plants and aquatic and QA/QC that has been collected  
6 and assessed?

7 Comment: Ohio Dominican University along  
8 the Alum Creek River also indicated they wanted to  
9 have for educational purposes a wetland be available  
10 for them to observe; however, in doing so, they  
11 emphasized and insisted that the City of Columbus build  
12 a very large bridge as part of the Alum Creek Trail  
13 extension that basically eliminated many, many feet  
14 and acres of native woodland forested area along both  
15 sides of the river bank.

16 So the good news is the students get to  
17 access a lot easier, but the bad news is they  
18 destroyed half of what they're going to be assessing.  
19 So our concern is again making sure we have a  
20 thorough understanding of what educational access  
21 will be allowed and how that will be done, if it's  
22 going to be a boardwalk or if you're going to build a  
23 driveway to it, we would have concerns regarding that.  
24 Thank you very much.

1 MR. WEISS: Thank you. Who else would  
2 like to testify this evening?

3 Yes, sir.

4 MR. QUAGLIOTTI: My name is Al  
5 Quagliotti, and I am a Site Coordinator --

6 MR. WEISS: Can you spell your last name,  
7 please.

8 MR. QUAGLIOTTI: Yes, sir.  
9 Q-U-A-G-L-I-O-T-T-I. And I'm a Site Coordinator for  
10 the site for Otterbein University, and I met many of  
11 you in the past. Some things came up during the  
12 meeting, the presentation I'd like to bring a little  
13 clarity to.

14 Number one, we have no interest in  
15 destroying any wetlands. We would not let them  
16 destroy them.

17 The question came up about building a  
18 parking lot on the site and coming off of Sunbury  
19 Lane. That's a wetland right there. You could never  
20 put a parking lot. We have no intention. We've  
21 never considered putting a parking lot on the site.  
22 As Rebecca said, we don't know what plans will come  
23 in the future, but personally, I don't foresee us  
24 building a parking lot and making this a county park



1 on this site.

2           The whole exposure issue I think needs a  
3 little bit of clarification. When we talk about risk  
4 assessment and exposure, you have to look at the  
5 duration and the exposure. Residential is living on  
6 site long-term. You're there 24 hours a day. That's  
7 the highest potential for exposure.

8           You may have heard a child that eats a  
9 pound of dirt a day for ten years and he increases  
10 his risk of cancer. So we're not allowed to have  
11 residential just because those conservative values  
12 would be exceeded if you lived on the site.

13           Some of you have seen me out there in  
14 these public meetings. I walk on that site in tennis  
15 shoes and short sleeve shirts. You can walk across  
16 that site, it's certainly safe. And it's not me  
17 saying this, it's the toxicologists and scientists  
18 who know these things.

19           It's based on limited exposure that  
20 somebody being on the site for a maximum so many  
21 hours a week, so many weeks per year. So, for  
22 instance, it might say you can be on site for eight  
23 hours a day once a week through the year, once a week  
24 of a whole year. So that's a lower standard because

1 what he's saying is you're not going to be exposed to  
2 those materials. So, therefore, that's a different  
3 standard that we're going to use.

4 Now, there's also discussion about what  
5 happens during construction. Let's say we don't  
6 anticipate any dust escaping but we can't say it  
7 won't. I won't stand here and tell you that won't  
8 happen. But if some dust blows onto your property  
9 and you're standing there and it gets on your skin,  
10 you have very limited exposure that one time or maybe  
11 for two weeks it blows on your property or whatever.

12 The scientists have shown that exposure  
13 is not enough to cause an increase in risk in cancer  
14 or other medical problems. So while you might not  
15 want the dust that will come off, I don't foresee and  
16 I think the toxicologists would say that's not going  
17 to cause you a problem.

18 I'd also like to discuss the rumor -- and  
19 it's always a hard time to talk about rumors because  
20 you said you didn't know what the source was or  
21 whatever -- there's nothing that's shown that a site  
22 like this would affect a school next door. There's  
23 no exposure unless the students go onto the site and  
24 they're on there eight hours a day or whatever

1 digging in the dirt. So the studies have shown that  
2 that should not be a problem for the school being  
3 next door.

4 Also, many of you know that I was on your  
5 property collecting samples with Robin and we took  
6 those samples back to the lab, we analyzed them, we  
7 gave you the data. We had professional toxicologists  
8 look at the data and in every case that we looked at,  
9 there was no problem.

10 MR. WEISS: One minute, Mark.

11 MR. QUAGLIOTTI: We provided you that and  
12 we can see about providing you that again. Robin,  
13 your schedule seems awfully aggressive to me with all  
14 the documents that we have to prepare, you have to  
15 review and get back to us and we have to get back to  
16 you. I really don't think you're going to see us  
17 digging next summer. We would love if that would  
18 happen, but I think that's an aggressive schedule.

19 Finally, I would like to offer that after  
20 the meeting, I'll be glad to talk to anybody, or if  
21 you would like to call me, my number is 412-860-0264.  
22 I've been on this project for over ten years, and I  
23 know it quite well. I'll be glad to talk to you on  
24 the phone, come to your house, whatever, meet you at

1 the University. Thank you.

2 MR. WEISS: Thank you very much.

3 Would anybody else like to provide  
4 testimony this evening?

5 Did you testify already?

6 MR. TOURVILLE: No, sir. Would you  
7 please clarify the date the comments are due? The  
8 Power Point slide said May 8th and your speech said  
9 Tuesday, May 2nd. May 2nd is a Wednesday, so would  
10 you please clarify the date.

11 MR. WEISS: May 8th.

12 MR. TOURVILLE: Thank you. Can I testify  
13 now?

14 MR. WEISS: Do you want to testify?

15 MR. TOURVILLE: Yes, I would. Thank you.

16 MR. WEISS: Can you state your name and  
17 spell it for the record.

18 MR. TOURVILLE: My name is Scott  
19 Tourville, T-O-U-R-V-as in Victor-I-L-L-E. My first  
20 comment is as a resident, I would like the -- I would  
21 like the opportunity to review the land use covenants  
22 before they're approved. I would prefer that be  
23 shared with all residents. I do live in The  
24 Landings.

1           My second two comments are as the City  
2 Engineer for the City of Westerville. The first  
3 comment would be that long term we have a need to  
4 extend the water main across the property. It is  
5 already extended to the eastern fence line here and  
6 there's a stub on Sunbury Lake.

7           Long-term we would like to make that  
8 connection for the benefits of our residents and  
9 drinking water quality. If there's an opportunity to  
10 coordinate with any potential remediation for us to  
11 install that water main, we would appreciate a seat  
12 at the table to see if that's possible.

13           The second comment is directed for the  
14 EPA in regards to notifications. I would encourage  
15 you to use the Auditor's website and just send a mass  
16 mailer using addresses instead of the sign-up lists  
17 to any and all nearby property owners within 500 or  
18 1,000 or 1,500 feet.

19           People come and go, they move, they  
20 leave, they sell the house. And my comment is that  
21 when I prepare mailers, I use an address list. I try  
22 not to use just a sign-up list from something that's  
23 been going on for 15 or 20 years so many of my other  
24 neighbors and our other neighbors -- again, I live in

1 The Landings -- can be modified.

2 I would argue that just using a sign-up  
3 list is not doing your due diligence, and I would  
4 request and encourage you to use some sort of mapping  
5 database or address list as opposed to a sign-up  
6 list.

7 MS. WEISS: Thank you.

8 Anybody else like to testify this  
9 evening?

10 Anyone? Going once.

11 MS. WINTZER: I guess I'll say something.  
12 I'm not sure how to do this.

13 MR. WEISS: Just state your name, spell  
14 it for the record and let us know.

15 MS. WINTZER: Okay. It's Jim and Cindy  
16 Wintzer, W-I-N-T-Z-E-R. We live at 660 Surf Court.  
17 It backs right up to the Otterbein property. My  
18 biggest concern, my question is, is it worth it? The  
19 stakes are very high.

20 I worry about -- especially if you're  
21 digging in the summertime, I worry about dust and so  
22 forth, it's going to come in my house. It's going to  
23 be everywhere. You can't help it because it's right  
24 on top of one of those areas. So my comment is



1 keeping myself safe, my family safe and my pets safe.

2 I've been here for 20 years. I've never  
3 had a problem with anything. I've never been sick.  
4 There's lots of activity back there. There's animals  
5 and plants, everything's growing. It's not a toxic  
6 waste dump. I think it can be capped.

7 And I think it can be used -- I  
8 understand they want to use it for trails or horses  
9 which would be great to have those things back there,  
10 but I just think if there's animals already back  
11 there, why isn't it safe for the horses and the  
12 people wandering back there?

13 It just seems like it's too big of a risk  
14 for all the people, my neighbors and myself, and we  
15 all back up to this. It's a very worrisome thing. I  
16 guess that's my concern. Just let us know what is  
17 going to happen and let us have some feedback and so  
18 forth.

19 MR. WEISS: Is that everything?

20 MS. WINTER: Yes.

21 MR. WEISS: Thank you very much.

22 Would anybody else like to testify this  
23 evening? Going once, going twice.

24 Okay, if there are no further requests to

1 present testimony, we'll go ahead and end the  
2 hearing. Please remember that written comments will  
3 be accepted through close of business on Tuesday,  
4 May 8th, 2018. They can be e-mailed again to  
5 Robin.roth@epa.ohio.gov.

6 Before we wrap up, I just want to thank  
7 you all for your questions, for participating and for  
8 your thoughtful input and for your participation in  
9 our decision-making process.

10 It is now 7:25 p.m. And the meeting is  
11 concluded. Thanks again so much.

12 (The public hearing was concluded at 7:25  
13 p.m.)

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CHARLE F. HUGHES

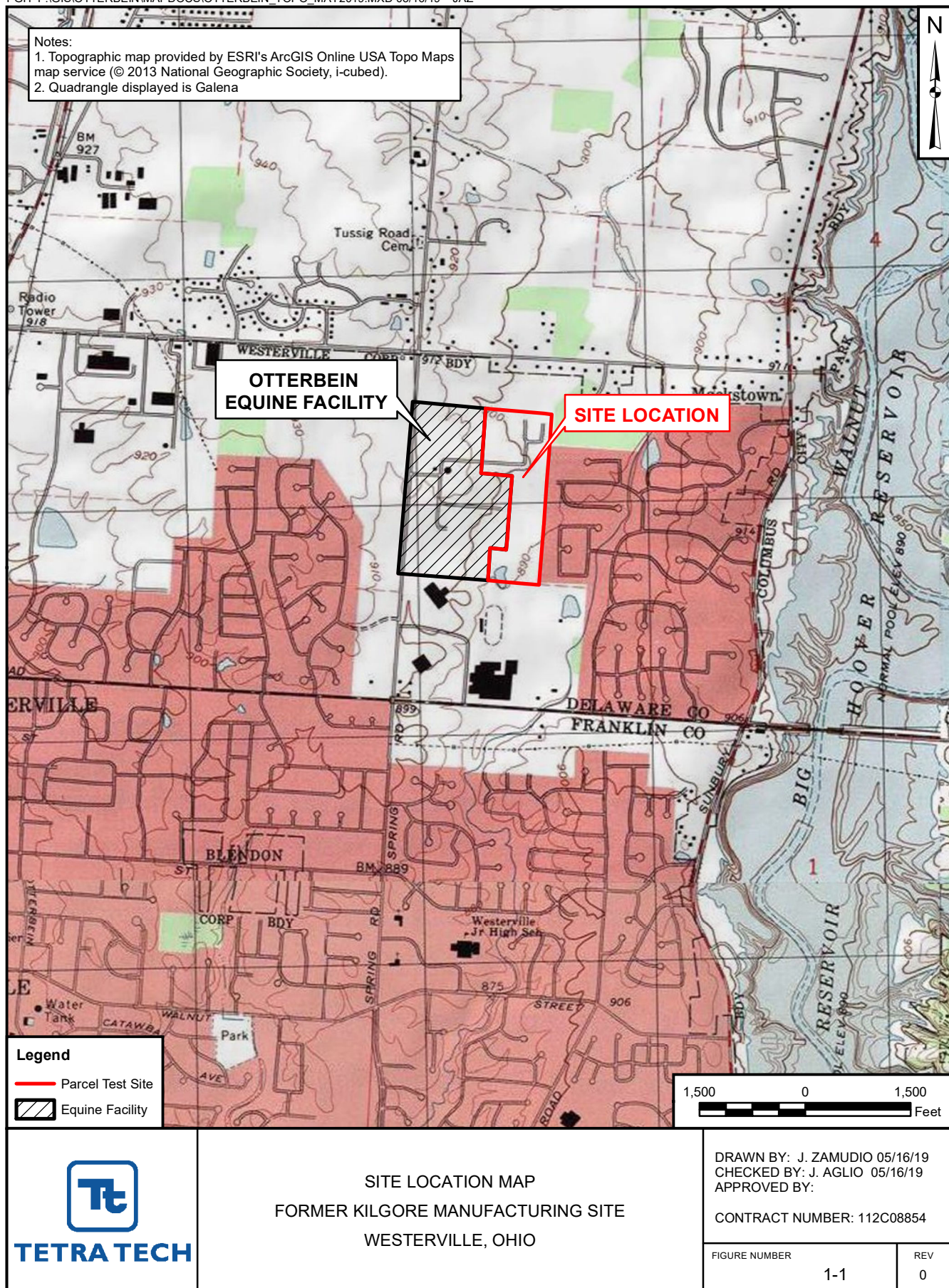
I do hereby certify that the foregoing is  
a true and correct transcript of the proceedings  
taken by me in this matter on Tuesday, April 24,  
2018, and carefully compared with my original  
stenographic notes.

\_\_\_\_\_  
Cynthia L. Cunningham

# Appendix B

## Site Map

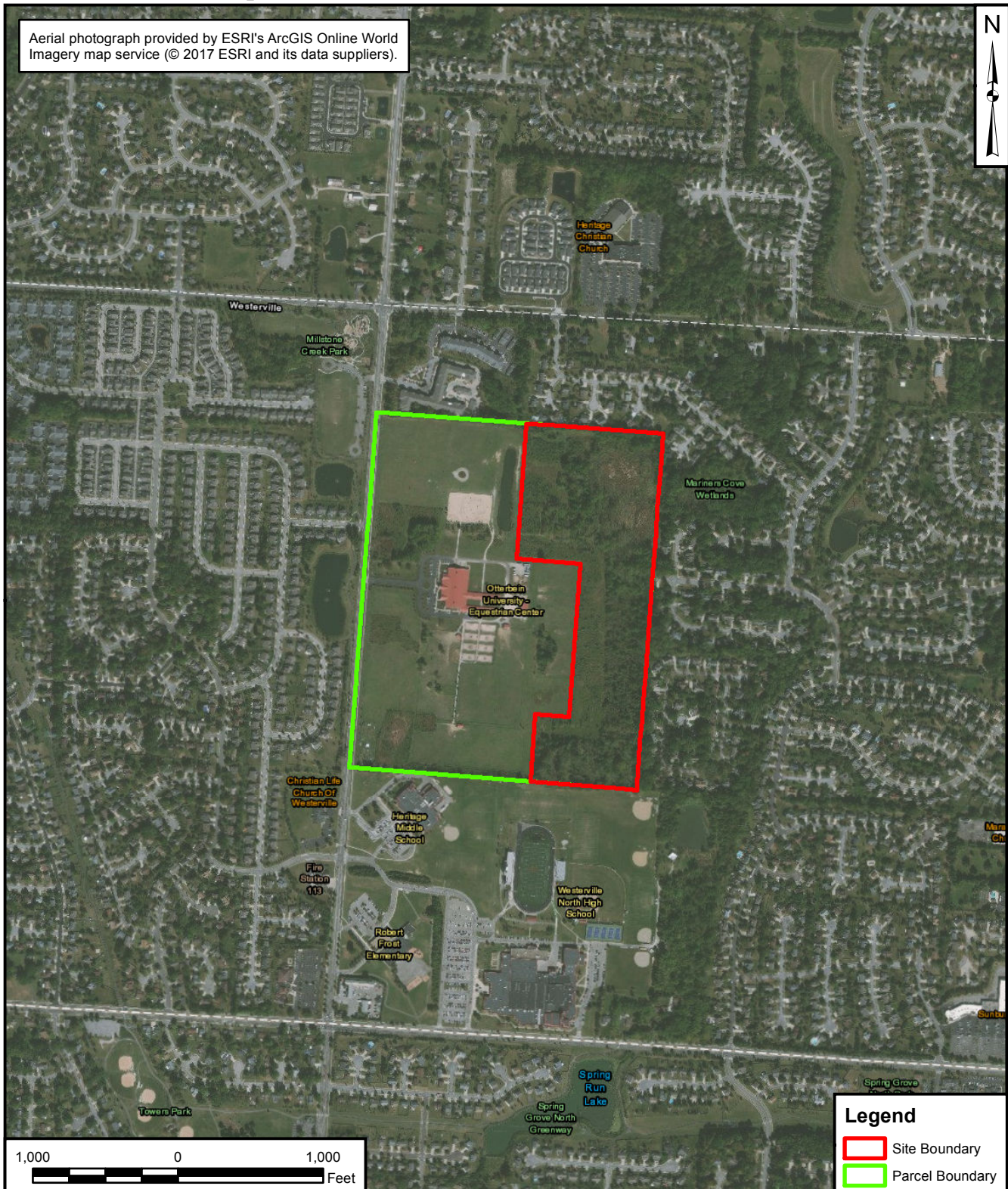
PGH P:\GIS\OTTERBEIN\MAPDOCS\OTTERBEIN\_TOPO\_MAY2019.MXD 05/16/19 JAZ





PGH P:\GIS\OTTERBEIN\MAPDOCS\AREA\_LAYOUT.MXD 04/04/19 KM

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2017 ESRI and its data suppliers).

**Legend**

- Site Boundary
- Parcel Boundary

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Feet



AREA LAYOUT  
FORMER KILGORE MANUFACTURING SITE  
WESTERVILLE, OHIO

DRAWN BY: J. ENGLISH 10/24/13

FIGURE NUMBER

FIGURE 2 - 1

REV

0



# Appendix C

## RD/RA Work Plan



**TETRA TECH**

**Remedial Design and Remedial Action  
Work Plan  
Former Kilgore Manufacturing Site  
Westerville, Ohio**

PREPARED BY:  
TETRA TECH, INC.  
661 ANDERSEN DRIVE  
FOSTER PLAZA 7  
PITTSBURGH, PA 15220

**June 2021**

# Remedial Design and Remedial Action Work Plan Former Kilgore Manufacturing Site

## PRESENTED TO

---

**Otterbein University**  
1 South Grove Street  
Westerville, Ohio

## PRESENTED BY

---

**Tetra Tech**  
661 Andersen Drive  
Suite 200  
Pittsburgh, PA 15220

**P** +1-412-921-7091  
**F** +1-412-921-4041  
tetratech.com

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Figure 8-1	Remedial Design and Remedial Action Schedule

## ATTACHMENT A

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Attachment A	Example Environmental Covenant
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## ACRONYMS

Acronyms	Definition
ACM	Asbestos Containing Material
AOC	Area of Concern
COC	Contaminants of Concern
CQA	Construction Quality Assurance
CQAP	Construction Quality Assurance Plan
EC	Environmental Covenant
EPA	Environmental Protection Agency
FS	Feasibility Study
FSP	Field Sampling Plan
HASP	Health and Safety Plan
LUC	Land Use Control
MPPEH	Materials Potentially Presenting an Explosive Hazard
mg/kg	Milligram per kilogram
msl	Mean Sea Level
O&M	Operation and Maintenance
ORC	Ohio Revised Code
PSVP	Performance Standard Verification Plan
QAPP	Quality Assurance Plan
RA	Remedial Action
RAIP	Remedial Action Implementation Plan
RAO	Remedial Action Objectives
RCP	Regulatory Compliance Plan
RI	Remedial Investigation
RL	Remediation Level
RD/RA	Remedial Design/Remedial Action
USDoD	United States Department of Defense
USDOJ	United States Department of Justice
UXO	Unexploded Ordnance

## 1.0 INTRODUCTION

This Remedial Design/Remedial Action (RD/RA) Work Plan and associated documents were prepared by Tetra Tech on behalf of Otterbein University (Otterbein) for the former Kilgore Manufacturing Company Facility (the Site) located at 400 North Spring Road in Westerville, Ohio (Figure 1-1).

## 1.1 GENERAL SCOPE OF THE WORK PLAN

This Work Plan was prepared in response to a Consent Decree currently being negotiated between by the State of Ohio, Otterbein University, and the United States Department of Defense (USDOD) to complete the RD/RA Phase for the Site. The Work Plan has been formatted to be in compliance with a variety of guidance documents provided by the Ohio Environmental Protection Agency (EPA), including the "State of Ohio Model Statement of Work for the Remedial Design and Remedial Action" (Ohio EPA, 2004).

## 1.2 MONTHLY PROGRESS REPORTS

Otterbein has been preparing monthly progress reports in accordance with provisions of the Remedial Investigation (RI)/Feasibility Study (FS) Consent Decree since July 2012 and these will continue during the RD/RA process. The items included in the monthly reports include:

- Status of the Work
- Difficulties Encountered
- Activities Planned for the Upcoming Month
- Key Personnel Changes
- Target Completion Dates for Activities
- Deviation from the Schedule
- Analytical Data Received
- Soil/Waste/Water Treated or Removed

## 1.3 FORMAT OF THE WORK PLAN

This Work Plan and associated documents presents a strategy for the RD/RA to be conducted at the Site. The Work Plan includes the following:

- **Section 2: Description of the Remedial Action**
  - Site Location and Description
  - Site Background and History
  - Remedial Action Objectives
- Description of the Remedial Action
- **Section 3: Pre-Design Studies**
- **Section 4: Remedial Design**
  - 60% Design
  - 90% Design

- 100% Design
- **Section 5: Remedial Action Construction**
  - Pre-construction and Pre-Final Conferences
  - Design Changes
  - Remedial Action Completion and Inspections
  - Construction Completion Report
- **Section 6: Five Year Reviews**
- **Section 7: Performance Monitoring**
  - Land Use Control (LUC) Inspections
- **Sections 8: Schedule**
- **Section 9: Project Management**
- **Section 10: References**

## 2.0 DESCRIPTION OF THE REMEDIAL ACTION

### 2.1 SITE LOCATION AND DESCRIPTION

The Kilgore Site subject to the Consent Decree is comprised of 40 acres of vacant property located at 400 North Spring Road approximately one-half mile north of County Line Road in the City of Westerville, Delaware County, Ohio. The Site is currently owned by Otterbein University, which owns 110 acres of property at this address referenced as Delaware County parcel #317-433-04-060-000 in property ownership records. The Otterbein Equine Science Facility occupies 70 of the 110 acres and the remaining 40 is the Site (Figure 2-1 and Figure 2-2).

The Site is located on the east side of Spring Road, approximately 700 feet south of Maxtown Road in a residential area of Westerville, Ohio and is currently vacant. The Site is partially wooded and overgrown with dense grasses and brush. The majority of the Site is covered with mature woodland. Remnants of gravel roads are still visible, but all above-ground structures have been razed. Site topography is generally level, with relief less than 10 feet (898 to 890 feet above mean sea level [msl]) from west to east across the Site.

The Site is surrounded by a mix of residential and school properties, vacant fields and wooded land:

North: Domestic housing, vacant fields and wooded land

East: Domestic housing

South: Westerville North High School and Heritage Middle Schools

West: The Otterbein University Equine Science Facility

Approximately 10 acres of wetlands (both federal and state) have been mapped at the Site.

### 2.2 SITE BACKGROUND AND HISTORY

In response to the needs of the Army Chemical Warfare Service for World War II, in 1941, Kilgore purchased the 110-acre former farm from Joe and Eva Morris and converted it to a pyrotechnics and ordnance manufacturing facility. This facility consisted of a network of small magazines, concrete buildings, a boiler house, Quonset huts, a water tower, and other ancillary support facilities. Kilgore's on-site activities included experimental work on explosives and other energetic materials as well as the manufacture and assembly of explosives, incendiary items, and detonation devices.

The Kilgore facility manufactured various types of flares including parachute, floating, photoflash, battlefield, trip, high altitude, 3-minute, and highway emergency flares for military and civilian uses. Other items manufactured included incendiary bombs such as thermite and magnesium explosive bomb clusters. For a short period, the facility experimented with the production of shaped charges (Kuis, 2003). Other specific products built or stored at the Site included 155 millimeter illuminating shells, hand and smoke grenade fuses and primers, M1 flame throwers, rocket line launchers, phosphorous float lights, and M112 photoflash cartridges (Kuis, 2003). Black powder was also formed into pellets at the facility.

After World War II until 1961 when the facility closed, Kilgore made toy cap guns and pyrotechnics for public use and illuminating flares for civilian and military use. Figure 2-3 shows the site layout in 1957 as prepared

by Metcalf & Eddy (Metcalf & Eddy, 2005). Figure 2-4 shows an aerial photograph of the entire 110-acre parcel in 1958 before the facility closed.

Wastes generated during Kilgore's operations, such as material from settling sumps in the manufacturing area and those items not meeting military standards, were burnt or disposed of in an unknown manner; waste disposal records are incomplete. Most information regarding the types and quantities of wastes produced, disposed, or treated on-site have been derived from a series of cleanups and investigations that have been conducted from 1962 to present.

In 1962, Commercial Credit Corporation donated the 110-acre former Kilgore Farm property to Otterbein College. The college accepted the property only after the U.S. Army investigated the Site; removed several truckloads of waste materials; and proclaimed the Site to be "clean". Farming, primarily of beans and corn, resumed after 1967 and ceased in 1986. In 1996 any remaining structures on-site were razed. From 1962 to 2007 numerous environmental investigations have been conducted on-site for a variety of reasons.

In April 2012, a Consent Decree for Implementation of RI and FS was entered into among the State of Ohio, Otterbein University, and the USDoD. A key objective of the Consent Decree was the completion of a RI and FS to determine the nature and extent of contamination at the Site. The RI was completed in 2014, the FS was completed in 2016, the FS Addendum was completed in 2017, and the Decision Document was issued in 2018.

A Project Kickoff meeting was held on November 20, 2018 at the Ohio EPA office in Columbus, Ohio, and included the Ohio EPA Site Coordinator, the Otterbein Site Coordinator, and the Tetra Tech Project Manager. Additional meetings between the Ohio EPA and Otterbein have occurred since the Project Kickoff Meeting to discuss the project. The recent discussions and agreements between Ohio EPA and Otterbein are reflected in this Work Plan. Meetings will be scheduled with Ohio EPA throughout the project as needed.

The first draft of the Kilgore RD/RA Work plan was submitted to the Ohio EPA on May 23, 2019. Following a review of the draft Work Plan by Ohio EPA, a technical meeting was held on September 12, 2019 in the Ohio EPA Central District Office to discuss questions and concerns that Ohio EPA had concerning the pre-design investigation portion of the Remedial Design. A series of conference calls with the Ohio EPA and Otterbein subsequently occurred and a second technical meeting was held on December 18, 2019 to discuss the remaining questions that the Ohio EPA had with the May 2019 Work Plan.

In November of 2020 Ohio EPA and Otterbein agreed to a path forward that involves excavation of soil and sediment in the areas delineated in the Decision Document to a depth of two feet; institution of engineering and institutional controls; and implementation of an operation and maintenance plan and agreement. On April 16, 2021, Otterbein submitted the *Former Kilgore Site Remedial Design/Remedial Action Project Status* letter (project definition letter) to Ohio EPA, which describes the remedial activities to be implemented at the former Kilgore Site by Otterbein University based on discussions between Otterbein and Ohio EPA. The work described in the April 16, 2021 project definition letter will be the basis for the RD/RA for which this Work Plan was prepared. A description of the remedial action is included in Section 2.4.

## 2.3 REMEDIAL ACTION OBJECTIVES

After reviewing the public comments to the revised Preferred Plan, the Ohio EPA issued the Decision Document for the Site in August 2018. The Decision Document listed the final Contaminants of Concern (COCs), which included only selected metals and dioxins/furans, for the Site, Remediation Levels (RLs), and the selected remedial alternatives for the Site. The below table summarizes the COCs and RLs for the Site.

Medium	COC	Remediation Level milligram per kilogram (mg/kg)
Soil: Human Health Direct Contact	Dioxins/Furans	0.00022
	Antimony	76
	Arsenic	23.1
	Lead	400
	Zinc	57,000
Soil and Sediment: Ecological Risk	Antimony	78
	Arsenic	23.1
	Barium	500
	Chromium	40
	Copper	80
	Lead	120
	Manganese	780
	Mercury	0.1
	Strontium	390
	Zinc	160

The selected remedial alternatives for the Site were Soil Remedial Alternative (S-12), Sediment Remedial Alternative (SED-9), and Groundwater Remedial Alternative (G-2). S-12 entails the excavation of soil from areas of concern (AOCs) 1, 2, 3, 6, and 8 as shown on Figure 2-5 and placing LUCs on the property to limit future use of the property to recreational and/or educational uses. SED-9 entails the excavation of sediment in AOCs 1 and 8 along with several miscellaneous locations as shown on Figure 2-6. G-2 entails prohibiting the extraction and use of groundwater at the Site.

Excavation of the soil and sediment as shown on Figure 2-5 and 2-6 to a maximum depth of two feet, implementation of an Operation and Maintenance (O&M) Plan, and implementation of land use controls will meet the Remedial Action Objectives (RAOs) listed on Table 3 of the Decision Document (page 9). Overall, the goals of RAOs are to prevent ingestion/direct contact with soil, sediment, and groundwater. The removal of material to a depth of two feet, the O&M Plan and land use controls will prevent human contact with any remaining impacted material below two feet. Any potential human contact with soils deeper than two feet as a result of some unforeseen construction (e.g., water or sewer lines) would be addressed in the Risk Management Plan.

The Performance Standards for soil will consist of the following:

- removal of soil to a depth of two feet.
- inclusion of a visible warning barrier.
- cover with clean backfill materials.
- completion of restoration activities, including vegetation growth.
- an O&M plan designed to maintain the cover and isolation of any subsurface soils.
- Implementation of land use controls and recording of environmental covenant.

The Performance Standards for sediment will consist of:

- removal of sediment to a depth of two feet.
- implementation of land use controls and recording of environmental covenant.

## 2.4 DESCRIPTION OF THE REMEDIAL ACTION

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As discussed in Section 2.2, Ohio EPA and Otterbein have agreed to a path forward that involves excavation of soil and sediment as outlined in the Decision Document and Otterbein's April 16, 2021 project definition letter, to a depth of two feet; institution of engineering and institutional controls; and implementation of an operation and maintenance program. The remedial action (RA) will be protective of human health and the environment and will meet the remedial action objectives outlined in the Decision Document.

The RA will contain the following and the below sections give a brief description of each component:

- removing the soil / sediment from the areas identified on Figures 2-5 and 2-6 to a depth of two feet.
- installing a visible warning barrier.
- backfilling with clean fill.
- establishing a grass type cover.
- implementing an O&M plan to ensure the cover stays intact and free from trees and shrubs.
- implementation of a risk management plan for future activities below 2 feet;
- implementing of land use controls that would prohibit the use of groundwater and limit the use of the property to recreational/educational uses.

### 2.4.1 Soil and Sediment Removal

The areas outlined on Figure 2-5 and 2-6 will have soil and sediment removed to a depth of two feet via mechanical excavation. The soil/sediment will be sampled for disposal classification and disposed of off-site at an appropriately permitted landfill.

### 2.4.2 Visible Warning Barrier

After the soil is excavated and prior to backfilling, a visible warning barrier will be installed. The warning barrier will consist of material similar to orange plastic snow fence. The warning barrier will be installed in such a way that if the soil backfill is eroded at any time in the future the barrier will become visible, indicating the soil backfill needs to be replaced. The warning barrier will not be installed in sediment removal areas.

### 2.4.3 Backfilling

After the warning barrier is installed, the soil excavations will be backfilled with two feet of clean fill. The fill material will be sampled prior to use to ensure it is not impacted. The backfill will be placed in two lifts consisting of 18-inches at depth and topped with 6-inches of topsoil.

### 2.4.4 Cover

After backfilling the areas will be seeded with native plants which will not require annual mowing. The soil cover will be considered established once 70% growth is established.



### **2.4.5 O&M Plan**

The O&M plan will cover long term operation and maintenance of the RA. It is anticipated the O&M will be minimal for this project. The plan will include the inspection of the excavated areas to ensure appropriate restoration has occurred; inspections of AOC 5, AOC-6, and AOC-8 for asbestos containing material; annual inspections of cover materials and vegetation; annual certification of compliance with the in-place land use restrictions; and annual reporting of compliance to the Ohio EPA. Also included will be the implementation of a risk mitigation plan that requires notification to future construction workers of potential site contaminants and management of excavated soil and sediment.

### **2.4.6 Risk Management Plan**

The Risk Management Plan will be prepared and implemented when any future activities involve excavation to depths 2-feet below original ground surface in any of the removal areas. The plan will include information about potential soil contamination, and best management practices for safe excavation to ensure the protection of future construction workers and soil management.

### **2.4.7 Land Use Controls**

Land Use Controls (LUCs) will be created and recorded in order to limit identified portions of the Site to recreational and/or educational purposes, prohibit the use of groundwater for any purpose other than sampling and analysis and ensure O&M implementation and reporting requirements. The LUCs will be in the form of an environmental covenant issued pursuant to Ohio Revised Code Sections 5301.80 through 5301.92.

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### 3.0 PRE-DESIGN STUDIES

Because of the nature of the planned remedial activities at the Kilgore Site, no Pre-Design Studies are warranted or anticipated prior to completing the Remedial Design for this project. However, the following assumptions are made regarding past remedial activities at the Site:

- The Site has been investigated numerous times and that data was used in the RI report. It is assumed that all historical data is still valid.
- Since 1962, remediation has been conducted at the Site on at least seven separate occasions. Most of the remedial activities undertaken in the past involved the removal of Material Potentially Presenting an Explosive Hazard (MPPEH) materials.

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## 4.0 REMEDIAL DESIGN

### 4.1 GENERAL REQUIREMENTS FOR PLANS AND SPECIFICATIONS

All design documents are expected to be clear, comprehensive and organized. Supporting data and documentation sufficient to define the functional aspects of the RA will be provided. Taken as a whole, the design documents will demonstrate that the RA is capable of meeting all objectives of the Decision Document, including any identified performance standards.

The plans and specifications will include the following:

1. Discussion of the design strategy and design basis including:
  - a. Compliance with requirements of the Decision Document and Otterbein's April 16, 2021 project definition letter, the Orders and all applicable regulatory requirements.
  - b. Minimization of environmental and public health impacts.
2. Discussion of the technical factors of importance including:
  - a. Use of currently accepted environmental control measures and technologies.
  - b. The constructability of the design.
  - c. Use of currently accepted construction practices and techniques.
3. Description of the assumptions made and detailed justification for those assumptions.
4. Discussion of possible sources of error and possible operation and maintenance problems.
5. Detailed drawings of the proposed design including, as appropriate:
  - a. Qualitative flow sheets.
  - b. Quantitative flow sheets.
6. Tables listing equipment and specifications.
7. Tables giving material and energy balances.
8. Appendices including:
  - a. Sample calculations (one example presented and clearly explained for significant or unique calculations).
  - b. Derivation of equations essential to understanding the report;
  - c. Results of laboratory tests, field tests and any additional studies.

### 4.2 60% DESIGN

Because the limits and depths of the excavations for the RA have been agreed upon by the Ohio EPA and Otterbein the 30% Preliminary Design submittal for this project will be eliminated. The 60% Design package will be the first submittal.

As discussed in Section 2.4, the basis for the Remedial Design (RD) will be to excavate soil and sediment as shown Figures 2-5 and 2-6 to a depth of 2-feet below ground surface. The RA was summarized in Section 2.3 and 2.4

The 60% Design, which reflects the design effort at approximately 60% completion, will be submitted to the Ohio EPA for review and comment in accordance with the schedule in the approved RD/RA Work Plan. At this stage of the design process, Otterbein will have verified existing conditions at the Site that may influence the design and implementation of the selected RA. The 60% Design will demonstrate that the basic technical requirements of the RA and at this time the Regulatory Compliance Plan will be submitted. The 60% Design will be reviewed to determine if the Final Design will provide an operable and usable RA that will be in compliance with all permitting requirements and response objectives. The 60% Design submittal will include the following elements, at a minimum:

- Preliminary plans, drawings and sketches, including design calculations.
- Design assumptions and parameters, including design restrictions, process performance criteria, appropriate unit processes for treatment systems, and expected removal or treatment efficiencies for both the process and waste (concentration and volume).
- Proposed cleanup verification methods, including compliance with applicable laws and regulations.
- Outline of design specifications.
- Proposed sitting/locations of processes/construction activity.
- Expected long-term operation and monitoring requirements.
- Real estate and easement requirements.
- Preliminary construction schedule, including contracting strategy.
- Design Plans and Specifications.
- Draft Construction Quality Assurance Plan (QAPP).
- Draft Performance Standard Verification Plan (PSVP).
- Draft O&M Plan.
- Health and Safety Plan (HASP).
- Regulatory Compliance Plan (RCP).

The supporting data and documentation necessary to define the functional aspects of the RA will be submitted with the 60% Design. The technical specifications will be outlined in a manner that anticipates the scope of the final specifications. The 60% Design will include the Construction QAPP, PSVP, O&M Plan, HASP and RCP. Revisions or amendments to the 60% Design required by Ohio EPA will be incorporated into the Prefinal Design.

#### **4.2.1 Construction and Quality Assurance Plan**

Otterbein will develop a Construction Quality Assurance Plan (CQAP) based on the plans and specifications and performance standards for the RA. The CQAP is a site-specific document that will specify procedures to ensure that the completed RA work meets or exceeds all design criteria and specifications. A draft CQAP will be submitted with the 60% Design submittal for review and comment by the Ohio EPA. Subsequent drafts will be submitted with the Prefinal and Final Design submittals that incorporate comments made by the Ohio EPA. Certain aspects of the CQAP, for example personnel names and qualifications, will likely not be known at the time of design approval. A complete and final CQAP will be submitted to Ohio EPA for approval prior to the start of construction. At a minimum, the CQAP will address the elements listed below.

##### **Responsibility and Authority**

The responsibility and authority of all organizations (i.e., technical consultants, construction firms, etc.) and key personnel involved in the construction of the RA(s) will be described fully in the CQAP. Otterbein will provide a copy of the approved CQAP to each organization with responsibility and authority for

implementing the CQAP. Otterbein will also identify a Construction Quality Assurance (CQA) officer and the necessary supporting inspection staff.

### **Construction Quality Assurance Personnel Qualifications**

The qualifications of the CQA officer and supporting inspection personnel will be presented in the CQAP to demonstrate that they possess the training and experience necessary to fulfill their identified responsibilities.

### **Inspection Activities**

The observations and tests that will be used to monitor the construction and/or installation of the components of the RA will be described in the CQAP. The plan will include scope and frequency of each type of inspection. Inspections will verify compliance with the design, applicable requirements of state and federal law and performance standards. Inspections will also ensure compliance with all health and safety standards and procedures. The CQAP will include provisions for conducting the preconstruction, prefinal and final inspections and associated meetings as described Ohio EPA Model Statement of Work.

### **Sampling Requirements**

The sampling activities necessary to ensure that the design specifications and performance standards are achieved will be presented in the CQAP. The description of these activities will include sample sizes, sample locations, frequency of sampling, testing to be performed, acceptance and rejection criteria, and plans for correcting problems as addressed in the design specifications.

### **Documentation**

Reporting requirements for CQA activities will be described in detail in the CQAP. This will include such items as daily summary reports, meeting reports, inspection data sheets, problem identification and corrective measures reports, design acceptance reports and final documentation. Provisions for the storage of all records will be presented in the CQAP.

## **4.2.2 Performance Standard Verification Plan**

A PSVP will be prepared to consolidate information for required testing, sampling and analysis to ensure that both short-term and long-term performance standards for the RA are met. Performance standards may include clean-up standards for contaminated environmental media as well as the measurement of the effectiveness of engineering controls or other controls used to control migration of or exposure to contaminants. The PSVP should describe the measurements to be taken along with any laboratory analysis to be conducted on the data obtained. The PSVP will include a field sampling plan (FSP) and a QAPP for any sampling and analysis to be conducted.

The Draft PSVP will be submitted with the 60% Design for review and comment by the Ohio EPA. The final PSVP, which fully addresses comments made by the Ohio EPA must be submitted with and approved as part of the Final Design.

## **4.2.3 Operation and Maintenance Plan**

Otterbein will prepare an O&M Plan to cover long term operation and maintenance of the RA. It is anticipated the O&M will be minimal for this project. The plan will include the inspection of the excavated



areas to ensure appropriate restoration has occurred; inspections of AOC 5, AOC-6, and AOC-8 for ACM; annual inspections of cover materials and vegetation; annual certification of compliance with any land use restrictions; annual reporting of compliance to the Ohio EPA; and implementation of a risk mitigation plan that requires notification to future construction workers of site contaminants.

Otterbein will submit a draft O&M Plan to the Ohio EPA for review and comment with the 60% Design submittal. Subsequent drafts of the O&M Plan will be submitted with the Prefinal and Final Design submittals, which reflect the refined plans and specifications of those submittals and any comments made by the Ohio EPA. The final O&M Plan will be submitted prior to or at the completion of construction of the RA and will incorporate any modifications or corrections required by the Ohio EPA.

### 4.3 PRE-FINAL DESIGN – 90%

Otterbein will submit a Prefinal Design for Ohio EPA review in accordance with the schedule in the approved RD/RA Work Plan when the design effort is at least 90% complete. Otterbein will ensure that any modifications required by the Ohio EPA's prior review of related Pre-design Studies Reports, technical memoranda, the 60% Design, and the QAPP and HASP are incorporated into the Prefinal Design submittal. The Prefinal Design submittal will consist of the following components, at a minimum:

- Design Plans and Specifications.
- CQAP.
- PSVP.
- O&M Plan.
- Remedial Action Implementation Plan (RAIP).
- Cost Estimate.
- HASP.

General correlation between drawings and technical specifications is a basic requirement of any set of working construction plans and specifications. Before submitting the RD specifications with the Prefinal Design, Otterbein will: (1) coordinate and cross-check the specifications and drawings and (2) complete the proofing of the edited specifications and required cross-checking of all drawings and specifications.

The Ohio EPA will provide written comments to Otterbein indicating any required revisions to the Prefinal Design. Comments may be provided as a narrative report and/or marking on design plan sheets. Revisions to the plans and specifications required by Ohio EPA will be incorporated into the Final Design. At the discretion of the Site Coordinator, Otterbein will also return to Ohio EPA all marked-up prints as evidence that the plans have been completely checked.

The Prefinal Design submittal may ultimately serve as the Final Design, if Ohio EPA has no further comments and notifies Otterbein that the Prefinal Design has been approved as the Final Design.

#### 4.3.1 Remedial Action Implementation Plan

Otterbein will develop a RAIP to help coordinate implementation of the various components of the RA. It will include a schedule for the RA that identifies timing for initiation and completion of all critical path tasks. Otterbein will specifically identify dates for completion of the project and major interim milestones in conformance with the approved RD/RA Workplan schedule. The RAIP is a management tool that should address the following topics:

1. Activities necessary to fully implement each of the components of the RA.
2. How these activities will be coordinated to facilitate construction/ implementation in accordance with the approved schedule.
3. Potential major scheduling problems or delays, which may impact overall schedule.
4. Lines of communication for discussing and resolving problems, should they arise.
5. Common and/or anticipated remedies to overcome potential problems and delays.

The RAIP will be submitted with the Prefinal Design for review and comment by the Ohio EPA. The final plan and RA project schedule will be submitted with the Final Design for review and approval.

### **4.3.2 Estimated Cost of the Remedial Action**

Otterbein will refine the cost estimate developed in the FS to reflect the detailed plans and specifications being developed for the RA. The cost estimate will include both capital and operation and maintenance costs for the entire project. The final estimate will be based on the final approved plans and specifications. It will include any changes required by the Ohio EPA during Final Design review, and reflect current prices for labor, materials, and equipment.

The refined cost estimate will be submitted by Otterbein with the Prefinal Design and the final cost estimate will be included with the Final Design submittal.

## **4.4 FINAL DESIGN – 100%**

Following incorporation of any required modifications resulting from the Ohio EPA's review of the Prefinal Design submittal, Otterbein will submit to the Ohio EPA the Final Design, which is 100% complete in accordance with the approved schedule described in the RD/RA Workplan. The Final Design submittal will include all the components of the Prefinal Design and each of those components will be complete. At the discretion of the Site Coordinator, any marked-up prints or drawings, which the Ohio EPA may have provided by way of comments on previous design submittals will be returned to the Ohio EPA, if they have not already been returned.

Otterbein will make corrections or changes based on Ohio EPA comments on the Final Design submittals. The revised Final Design will then be submitted in their entirety to the Ohio EPA for approval as the completed Final Design. Upon approval of the Site Coordinator, final corrections may be made by submitting corrected pages to the Final Design documents.

The quality of the Final Design submittal should be such that Otterbein will be able to include them in a bid package and invite contractors to submit bids for the construction project.

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## 5.0 REMEDIAL ACTION CONSTRUCTION

Following approval of the Final Design submittal by the Ohio EPA, Otterbein will implement the designed RA at the Site in accordance with the plans, specifications, CQAP, PSVP, HASP, RAIP, and QAPP approved with the Final Design. Implementation will include the activities described in the following sections.

### 5.1 PRECONSTRUCTION INSPECTION AND CONFERENCE

Otterbein will participate in a preconstruction inspection and conference with the Ohio EPA to accomplish the following:

- Review methods for documenting and reporting inspection data.
- Review methods for distributing and storing documents and reports.
- Review work area security and safety protocol.
- Discuss any appropriate modifications to the CQAP to ensure that site specific considerations are addressed. The final CQAP (including the names of the appropriate CQA officer and the necessary supporting inspection staff) will be submitted to the Ohio EPA at this time, if it has not already been submitted.
- Introduce key construction contractor, engineering and project management personnel and review roles during construction activities.
- Conduct a site walk-around to verify that the design criteria, plans, and specifications are understood and to review material and equipment storage locations.

Otterbein will schedule the preconstruction inspection and conference to be held within 10 days of the award of the construction contract. The preconstruction inspection and conference will be documented by a designated person and minutes of the conference will be transmitted to all parties in attendance by Otterbein.

### 5.2 DESIGN CHANGES DURING CONSTRUCTION

During construction, unforeseen site conditions, changes in estimated quantities of required construction materials and other problems associated with the project are likely to develop. Such changing conditions may require either major or minor changes to the approved Final Design. Certain design changes will require approval of the Ohio EPA prior to implementation to ensure that the intent and scope of the RA is maintained. Although highly unlikely, significant changes, which could alter the intent or scope of the RA, may require a revision to the Decision Document and Otterbein's April 16, 2021 project definition letter and a public comment period. The RA was summarized in Section 2.3 and 2.4. Changes to the RD that require Ohio EPA written approval prior to implementation include:

- Those that involve the deletion or addition of a major component of the approved remedy (e.g., changing one treatment system for another; deleting any designed layer of a multi-layer cap).
- Those that result in a less effective treatment for wastes associated with the Site.
- Those that may result in an increase of the exposure to chemicals of concern and/or risk to human health or the environment as compared to the goals for the completed RA as stated in the Decision Document. The RA was summarized in Section 2.3 and 2.4.
- Those that result in a significant delay in the completion of the RA.
- Any other changes that alter or are outside of the scope or intent of the approved RD.

Ohio EPA will be notified of other changes made during construction through daily inspection reports and monthly progress reports.

## 5.3 REMEDIAL ACTION CONSTRUCTION COMPLETION

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As the construction of the RA nears completion, the following activities and reporting will be completed by Otterbein to ensure proper project completion, approval, closeout and transition to the O&M monitoring phase.

### 5.3.1 Prefinal Construction Conference

Within seven days of making a preliminary determination that construction is complete, Otterbein will provide written notification to the Ohio EPA and a prefinal construction conference will be held with the construction contractor(s) to discuss procedures and requirements for project completion and closeout. Otterbein will have the responsibility for arranging the conference. Participants may include the Project Manager for Otterbein, the Site Coordinator for Ohio EPA, all contractors involved with construction of the RA(s) and the RD agent (person(s) designed the remedy), if requested.

A list of suggested items to be covered at the conference includes, but is not limited to the following:

- Final O&M Plan submission, if it has not been submitted already.
- Cleanup responsibilities.
- Demobilization activities.
- Security requirements for project transfer.
- Prefinal inspection schedule.
- Operator training.

The prefinal conference will be documented by a designated person and minutes will be transmitted to all parties in attendance by Otterbein.

### 5.3.2 Prefinal Inspection

Following the prefinal construction conference, a prefinal inspection of the project will be conducted. The prefinal inspection will be led by Ohio EPA with assistance from the party with primary responsibility for construction inspection, if requested.

The prefinal inspection will consist of a walk-through inspection of the entire Site. The completed site work will be inspected to determine whether the project is complete and consistent with the contract documents and the approved RD/RA Work Plan. Any outstanding deficient or incomplete construction items should be identified and noted during the inspection.

If construction of major components of a RA is performed in distinct phases or under separate contracts due to the complex scope of the site remedy, it may be appropriate to conduct the prefinal inspections of those components separately. The approved RAIP should identify those projects and components, which should be handled in that manner.

Upon completion of the prefinal inspection, an inspection report will be prepared by Otterbein and submitted to Ohio EPA with the minutes from the prefinal conference. A copy of the report will be provided to all parties in attendance at the inspection. The report will outline the outstanding construction items, actions required

to resolve those items, completion date for those items and a date for the final inspection. Ohio EPA will review the inspection report and notify Otterbein of any disagreements with it.

### 5.3.3 Final Inspection

Within seven days following completion of any outstanding construction items, Otterbein will provide written notification to the Ohio EPA and schedule a final inspection. A final inspection will be conducted by the Ohio EPA with assistance from the party having primary responsibility for construction inspection, if requested.

The final inspection will consist of a walk-through inspection of the project site focusing on the outstanding construction items identified during the prefinal inspection. The Prefinal Inspection Report will be used as a checklist. The contractor's demobilization activities will have been completed, except for equipment and materials required to complete the outstanding construction items. If any items remain deficient or incomplete, the inspection will be considered a prefinal inspection requiring another prefinal inspection report and final inspection.

As with the prefinal inspection, it may be appropriate to conduct final inspections of major components of a RA separately. Such projects and components should be identified in the approved RAIP.

## 5.4 CONSTRUCTION COMPLETION REPORT AND CERTIFICATION

Upon satisfactory completion of the remedial activities and final inspection, a Construction Completion Report will be prepared by Otterbein and submitted to the Ohio EPA within 30 days after the final inspection. The report will include the following elements:

1. A brief description of the outstanding construction items from the prefinal inspection and an indication that the items were satisfactorily resolved.
2. A synopsis of the work defined in the approved RD/RA Work Plan and the Final Design and certification that this work was performed.
3. An explanation of any changes to the work defined in the approved RD/RA Work Plan and Final Design, including as-built drawings of the constructed RA facilities, and why the changes were necessary or beneficial for the project.
4. Certification that the constructed RA or component of the RA is operational and functional;
5. Waste Disposal Documentation.

The construction completion report will be reviewed by the Ohio EPA. If Ohio EPA's review indicates that corrections or amendments to the report are necessary, comments will be provided to Otterbein. Otterbein will submit a revised construction completion report based on Ohio EPA comments to the Ohio EPA within 30 days of receipt of those comments. Upon determination by the Ohio EPA that the report is acceptable, written notice of Ohio EPA's approval of the construction completion report will be provided to Otterbein.

## 5.5 LAND USE CONTROL IMPLEMENTATION

A draft of the environmental covenant will be worked on by Otterbein and the Ohio EPA during the RA and will be ready to record after the RA is complete. Otterbein will be required to place environmental covenants (i.e., LUCs) on the Site. The environmental covenants will provide the legal mechanism necessary to satisfy use restrictions for the Site. The LUCs will include limiting portions of the Site to recreational and/or educational purposes and prohibit the use of groundwater for any purpose other than sampling and

analysis. Ohio Revised Code (ORC) 5301.85 and ORC 5301.90 prohibit the unilateral removal of the environmental covenant or any activity and used limitations by current or future property owners. Otterbein will use the environmental covenant template provided by Ohio EPA and included as Attachment A.

## 5.6 COMPLETION OF REMEDIAL ACTION REPORT

---

At the completion of the RA, Otterbein will submit a Completion of RA Report to the Ohio EPA. The RA will be considered complete when all of the goals, performance standards and cleanup standards for the RA as stated in Section 2.3 and 2.4, this scope of work, and the approved Final Design (including changes approved during construction) have been met. The report will document that the project is consistent with the design specifications, and that the RA was performed to meet or exceed all required goals, cleanup standards and performance standards. The report will include, but not be limited to the following elements:

1. Synopsis of the RA and certification of the design and construction.
2. Listing of the cleanup and performance standards as established in the Decision Document, Otterbein's April 16, 2021 project definition letter, the Orders and any amendments to those standards with an explanation for adopting the amendments.
3. Summary and explanation of any changes to the approved plans and specifications. An explanation of why the changes were necessary should be included and, where necessary, Ohio EPA approval of the changes should be documented.
4. Summary of operation of treatment systems including monitoring data, indicating that the RA met or exceeded the performance standards or cleanup criteria.
5. Explanation of any monitoring and maintenance activities to be undertaken at the site in the future.



## 6.0 FIVE YEAR REVIEW

At sites where contaminants will remain at levels that will not permit unrestricted use of the site, a review will be conducted no less frequently than once every five years to ensure that the remedy continues to be protective of human health and the environment. This is commonly known as the "Five-Year Review". Otterbein will complete the first Five-Year Review Report five years after the completion of the RA, and every five years thereafter or until contaminant levels allow for unrestricted use of the site.

The primary purpose of the reviews is two-fold: (1) to confirm that the RA as specified in the Decision Document and Otterbein's April 16, 2021 project definition letter and in Sections 2.3 and 2.4 as implemented continues to be effective in protecting human health and the environment (e.g., the remedy is operating and functioning as designed, institutional controls are in place and are protective) and (2) to evaluate whether original cleanup levels remain protective of human health and the environment. A further objective is to evaluate the scope of O&M, the frequency of repairs, changes in environmental standards, costs at the Site, and how each of these factors relate to protectiveness.

Fifteen months prior to the due date for completion of a five-year review, Otterbein will meet with Ohio EPA to discuss the requirements of the five-year review. The first review must be completed within five years following the initiation of the RA. The scope and level of review will depend on conditions at the Site. The scoping effort should include a determination by the Site Coordinator and Otterbein as to whether environmental standards have changed to a degree, which would require additional evaluation at the Site. The Five-Year Review Report will be reviewed by the Ohio EPA. If Ohio EPA's review indicates that corrections or amendments to the report are necessary, comments will be provided to Otterbein. Otterbein will submit a revised Five-Year Review Report based on Ohio EPA comments to the Ohio EPA within 30 days of receipt of those comments.

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## 7.0 PERFORMANCE MONITORING

Otterbein will implement performance monitoring and O&M procedures as required by the approved PSVP and approved O&M Plan for the RA.

### 7.1 ANNUAL INSPECTIONS

On an annual basis Otterbein will inspect the site to determine if the LUCs implemented for the site are being maintained and if there is any ACM present in AOC 5, 6, and 8. The areas of excavation, as shown on Figures 2-5 and 2-6, will be inspected to ensure full restoration is being maintained, including cover integrity.

### 7.2 ANNUAL REPORTING

Otterbein will prepare and submit a brief annual report that will summarize the results of the inspections. The annual report will contain an evaluation of the effectiveness of any engineering systems in meeting the cleanup standards, performance standards and other goals of the RA as defined in the Consent Decree, the RD/RA Work Plan and the approved Final Design.

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## 8.0 SCHEDULE

Although the draft Consent Decree had not been signed as of the date of this Work Plan, Otterbein and Ohio EPA mutually agreed to proceed with the RD/RA process. If the Consent Decree has not been signed by the approval of this Work Plan, the RD phase will be postponed until the Consent Decree has been signed. For the development of the anticipated schedule, it is assumed that by September 30, 2021 the Consent Decree will be signed. If the Consent Decree is not signed by that date, then the schedule will be revised.

The anticipated schedule for the Kilgore RD/RA is presented as a Gantt chart on Figure 8-1.

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## 9.0 PROJECT MANAGEMENT

### 9.1 PERSONNEL

The RD/RA project will be conducted in accordance with a Consent Decree between Otterbein, Ohio EPA and the United States Department of Justice (USDOJ), which is currently being negotiated. Otterbein retained Tetra Tech to initiate the RD/RA process on behalf of Otterbein.

The USDOJ and USDoD are funding a portion of the RD/RA and it is expected that the representatives of the federal government will monitor ongoing site activities.

In accordance with the draft consent decree, Ohio EPA and Otterbein have named Site Coordinators who will serve as points of contact for the respective groups. Ohio EPA named Mr. Ray Moreno of the Ohio EPA Division of Environmental Response and Revitalization Central District Office as the Ohio EPA Site Coordinator. Otterbein named Mr. Al Quagliotti P.G. as the Site Coordinator for Otterbein.

MPPEH that could remain on the site is expected to be below the ground surface. During excavation activities as part of the remediation, qualified unexploded ordnance (UXO) personnel will be on site to monitor for the presence of any MPPEH or UXO items, and if necessary, arrange for its safe handling and appropriate disposal.

### 9.2 COMMUNITY RELATIONS SUPPORT

The site is immediately adjacent to a residential neighborhood and facilities of the Westerville School District. Due to high public visibility for this project, citizen involvement and communication will be a key requirement for the RA. It is assumed that a public meeting will occur prior to the initiation of the field activities.

A community relations program will be implemented by Ohio EPA. Otterbein shall cooperate with the Ohio EPA in community relations efforts. Cooperation may include participate in preparation of all appropriate information disseminated to the public and in public meeting that may be held or sponsored by Ohio EPA concerning the Site. In addition, Otterbein intends to prepare a fact sheet for the project for public distribution. The fact sheet will be submitted to Ohio EPA for review prior to its release.

Ms. Jessica Langdon is the Ohio EPA Public Relations Officer for the project and will serve as the liaison with the public regarding activities and conditions at the Site. Ms. Jenny Hill will serve as the Otterbein Public Relations Officer for the project.



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## 10.0 REFERENCES

Kuis, Ronald, Esquire, and Susan Esquire, 2003. Hazardous Substances Identified at Former Kilgore Manufacturing Facility. Submitted on behalf of Otterbein College. January 20, 2003.

Metcalf and Eddy, 2005. Preliminary Phase II Property Assessment Ohio Voluntary Action Program. June 2005.

Ohio EPA, 2004. Model Statement of Work for the Remedial Design and Remedial Action. August 2004.

Ohio EPA, 2018. Decision Document, for the Remediation of the Former Manufacturing Site. August 2018.

Otterbein University, 2021. Former Kilgore Site Remedial Design/Remedial Action Project Status Letter, April 2021.

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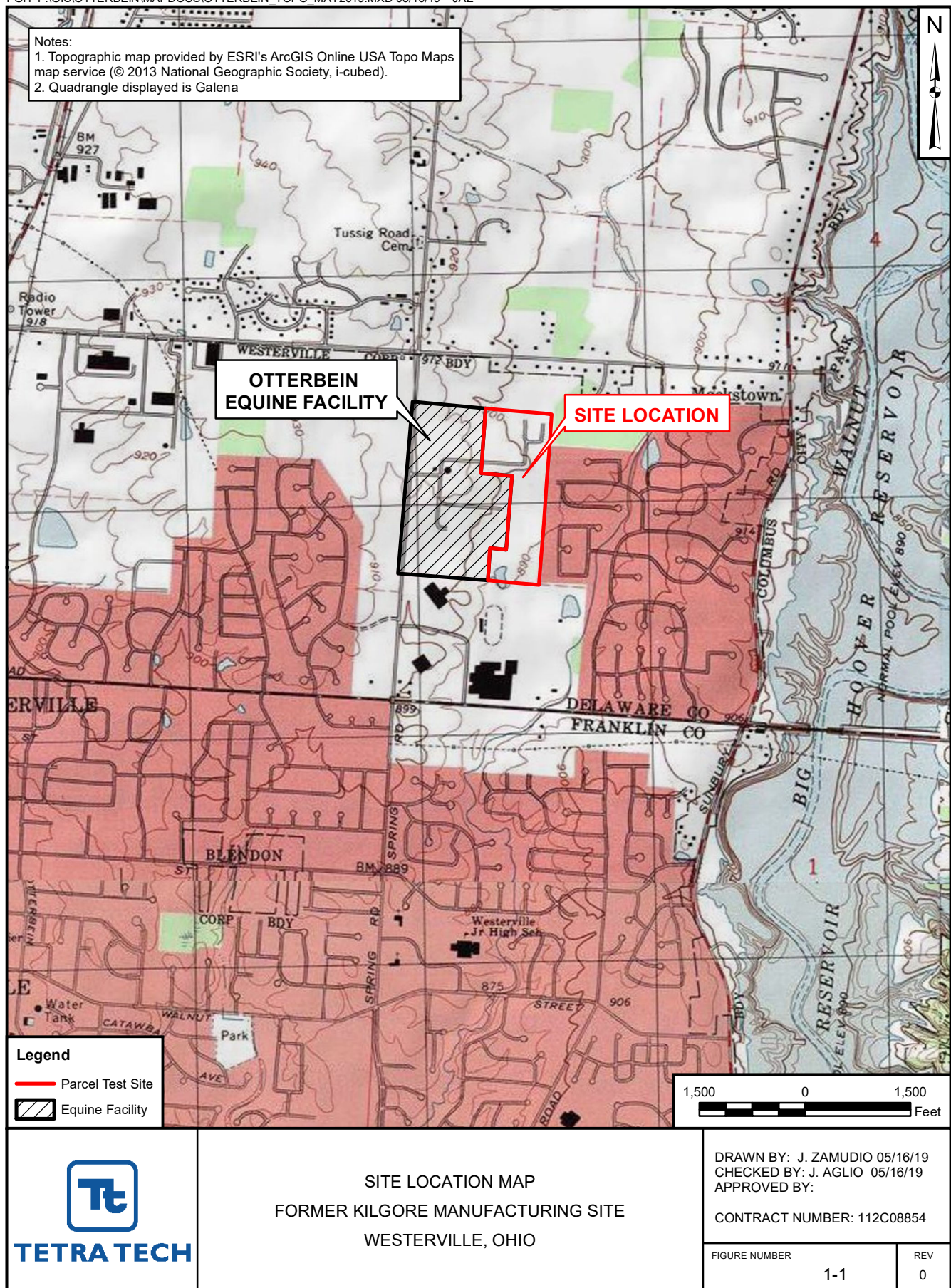
Remedial Design/Remedial Action Work Plan  
Kilgore Manufacturing Company, Westerville, Ohio

Rev. 3  
June 2021

## FIGURES

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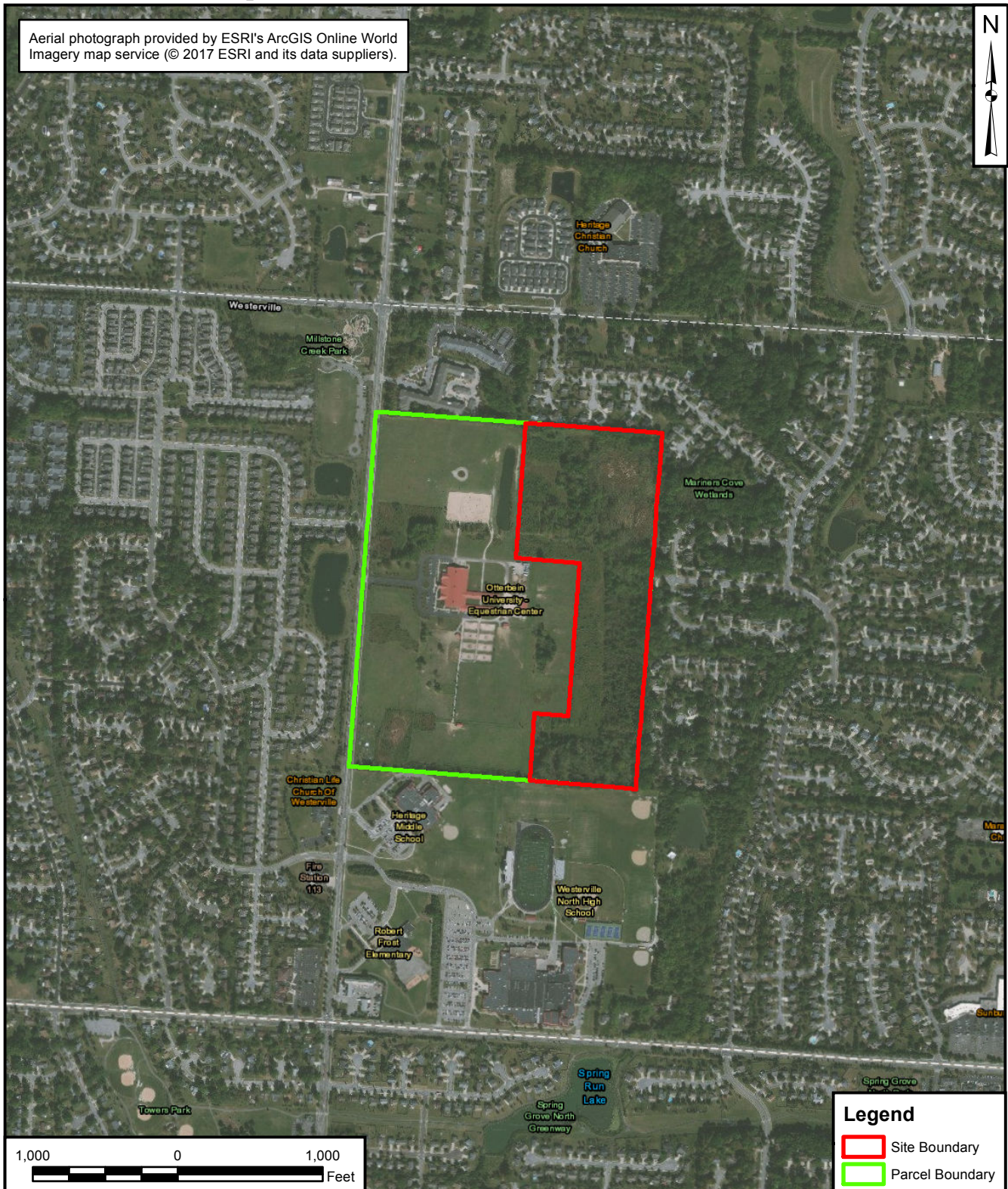
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Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2017 ESRI and its data suppliers).



**Legend**

- Site Boundary
- Parcel Boundary



AREA LAYOUT  
FORMER KILGORE MANUFACTURING SITE  
WESTERVILLE, OHIO

DRAWN BY: J. ENGLISH 10/24/13

FIGURE NUMBER

FIGURE 2 - 1

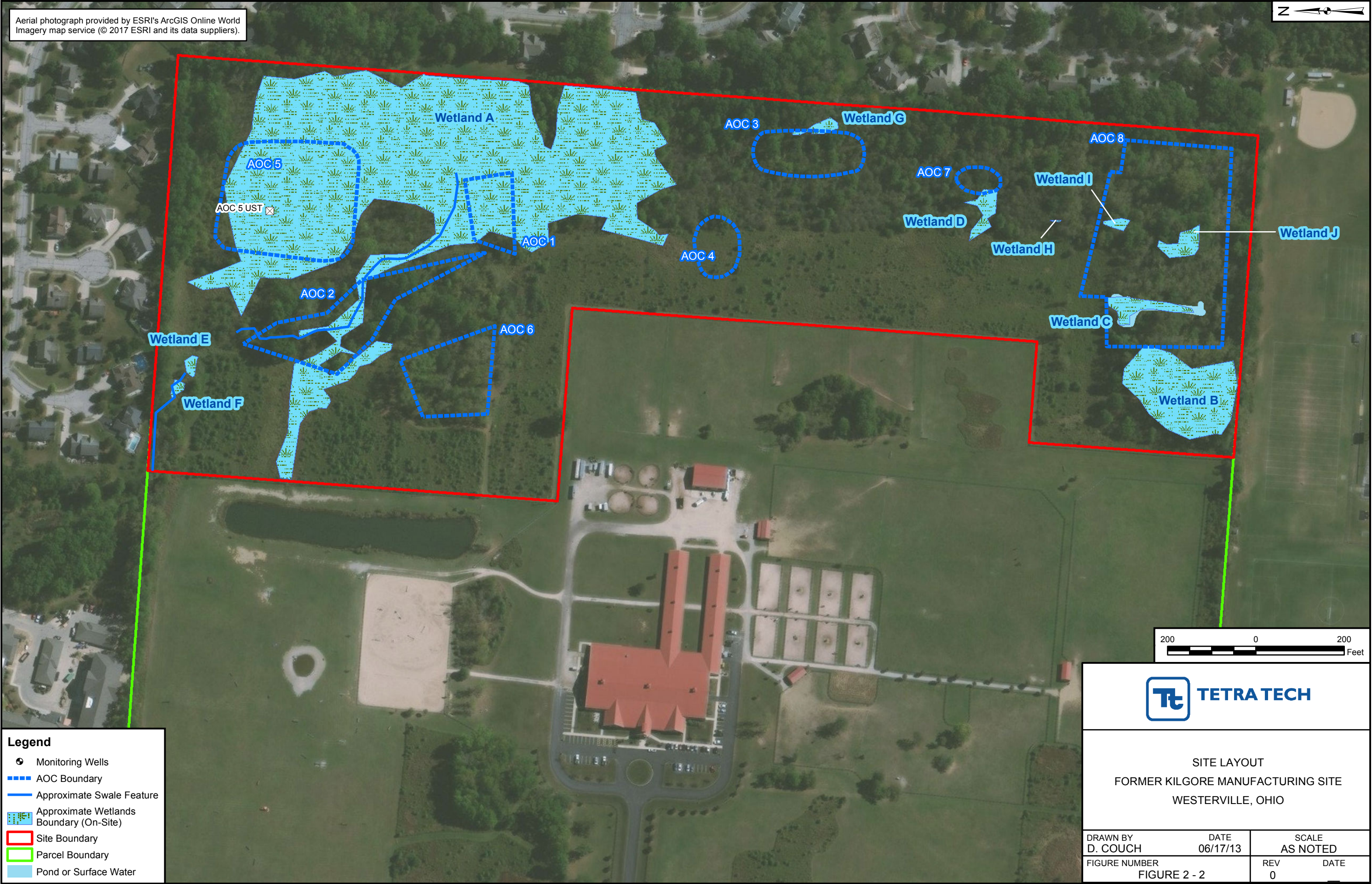
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Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2017 ESRI and its data suppliers).



**Legend**

- Monitoring Wells
- AOC Boundary
- Approximate Swale Feature
- Approximate Wetlands Boundary (On-Site)
- Site Boundary
- Parcel Boundary
- Pond or Surface Water

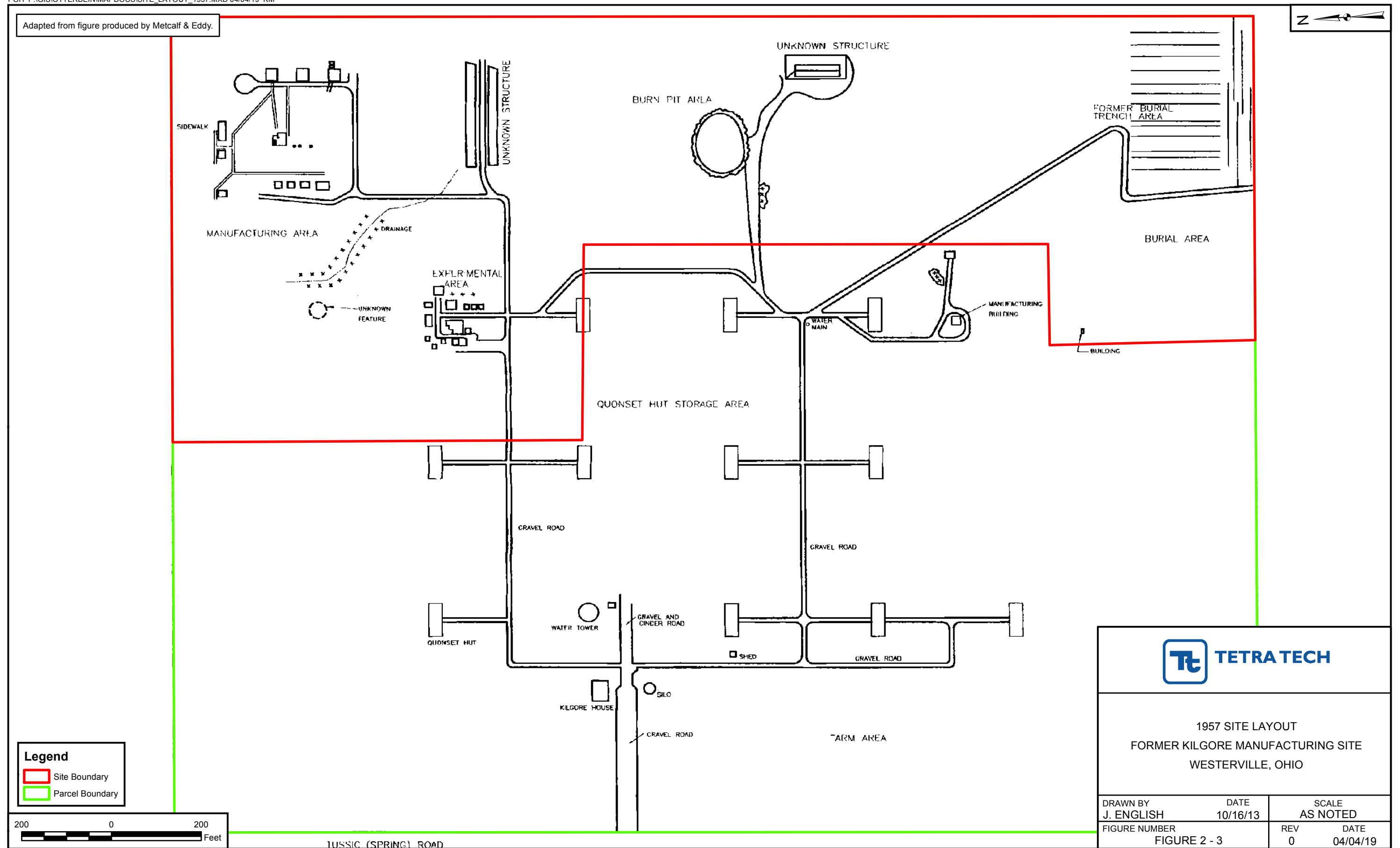
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SITE LAYOUT  
FORMER KILGORE MANUFACTURING SITE  
WESTERVILLE, OHIO

DRAWN BY D. COUCH	DATE 06/17/13	SCALE AS NOTED
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1958 AERIAL PHOTOGRAPH  
FORMER KILGORE MANUFACTURING SITE  
WESTERVILLE, OHIO

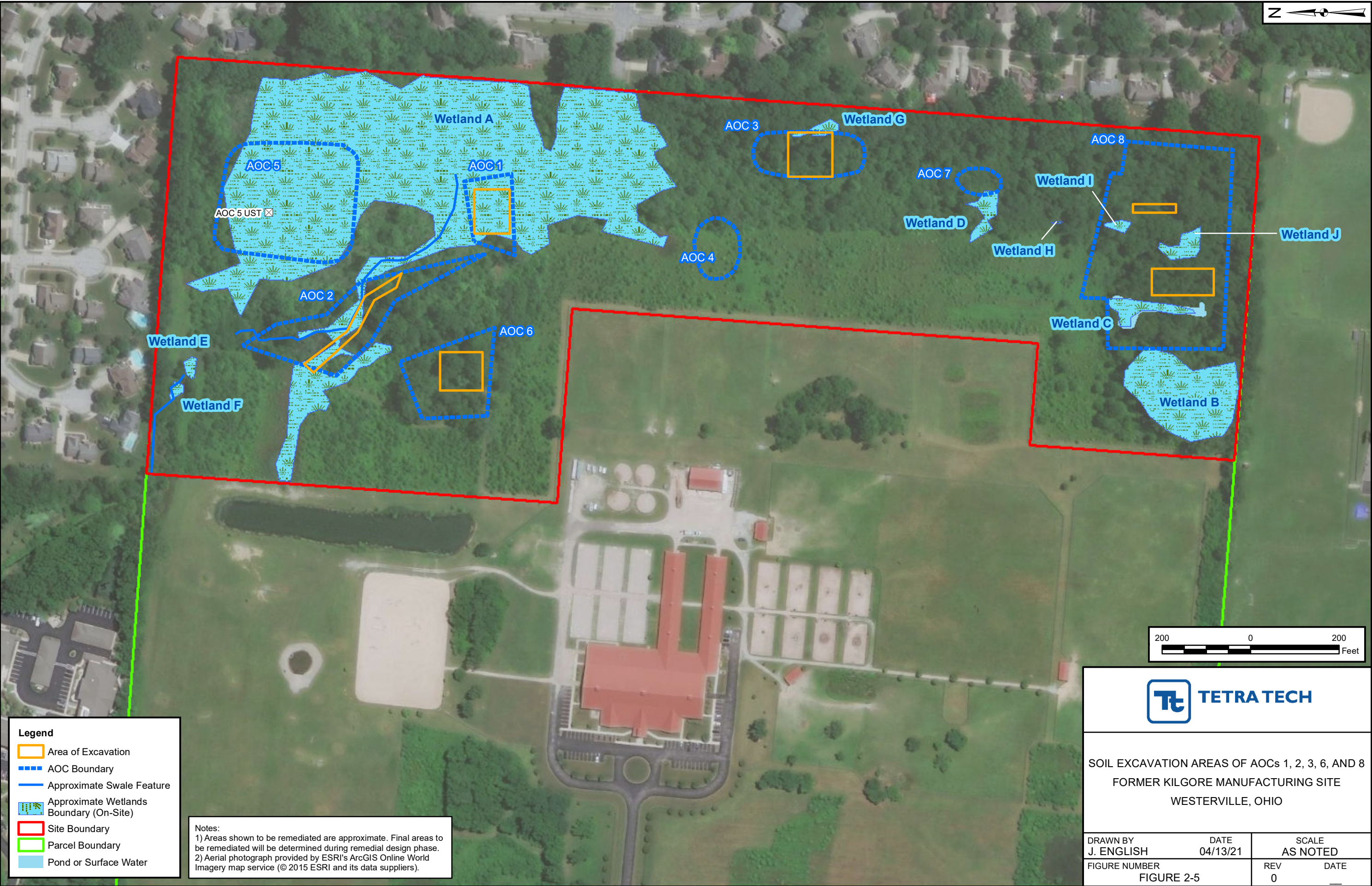
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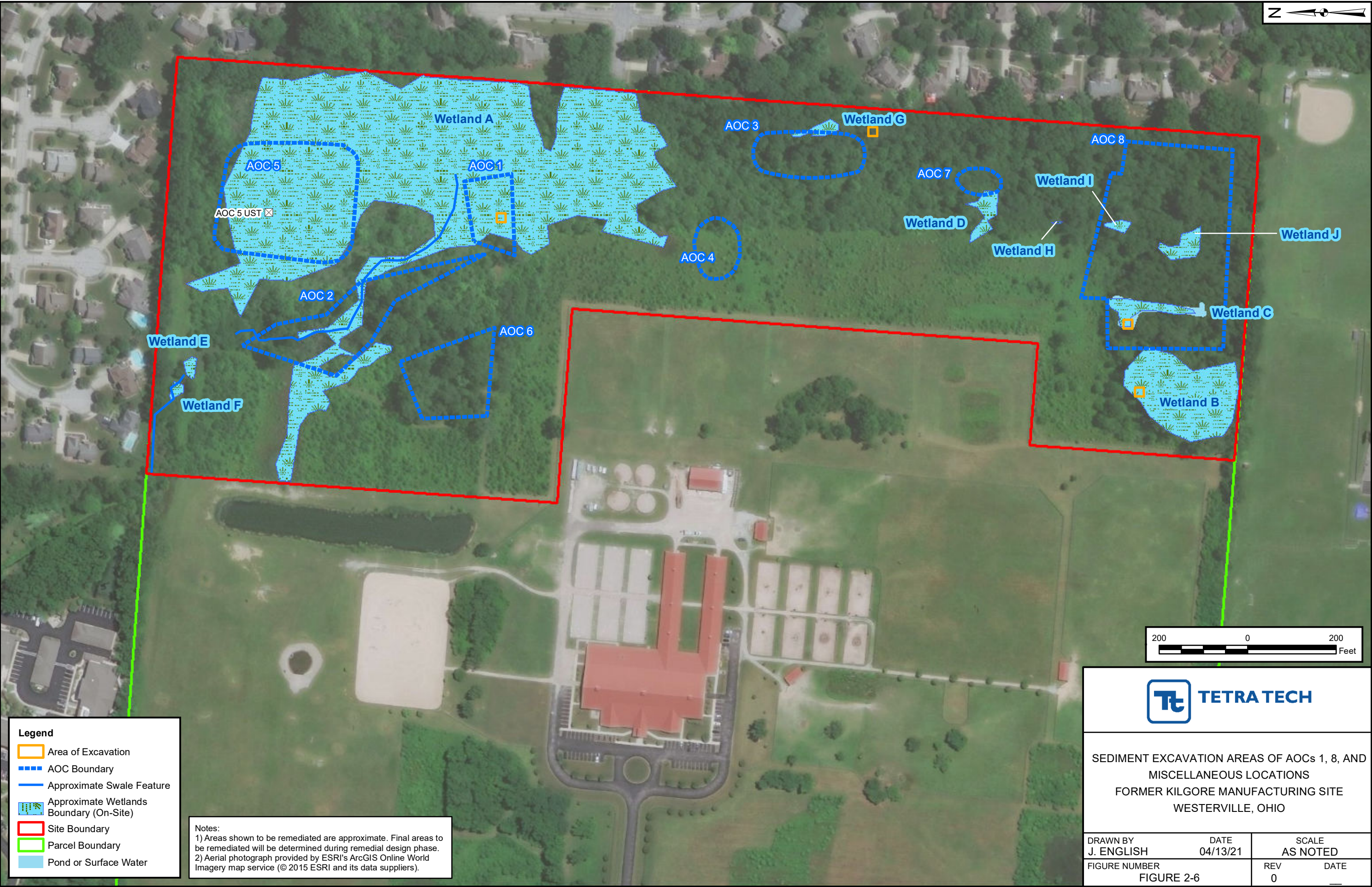
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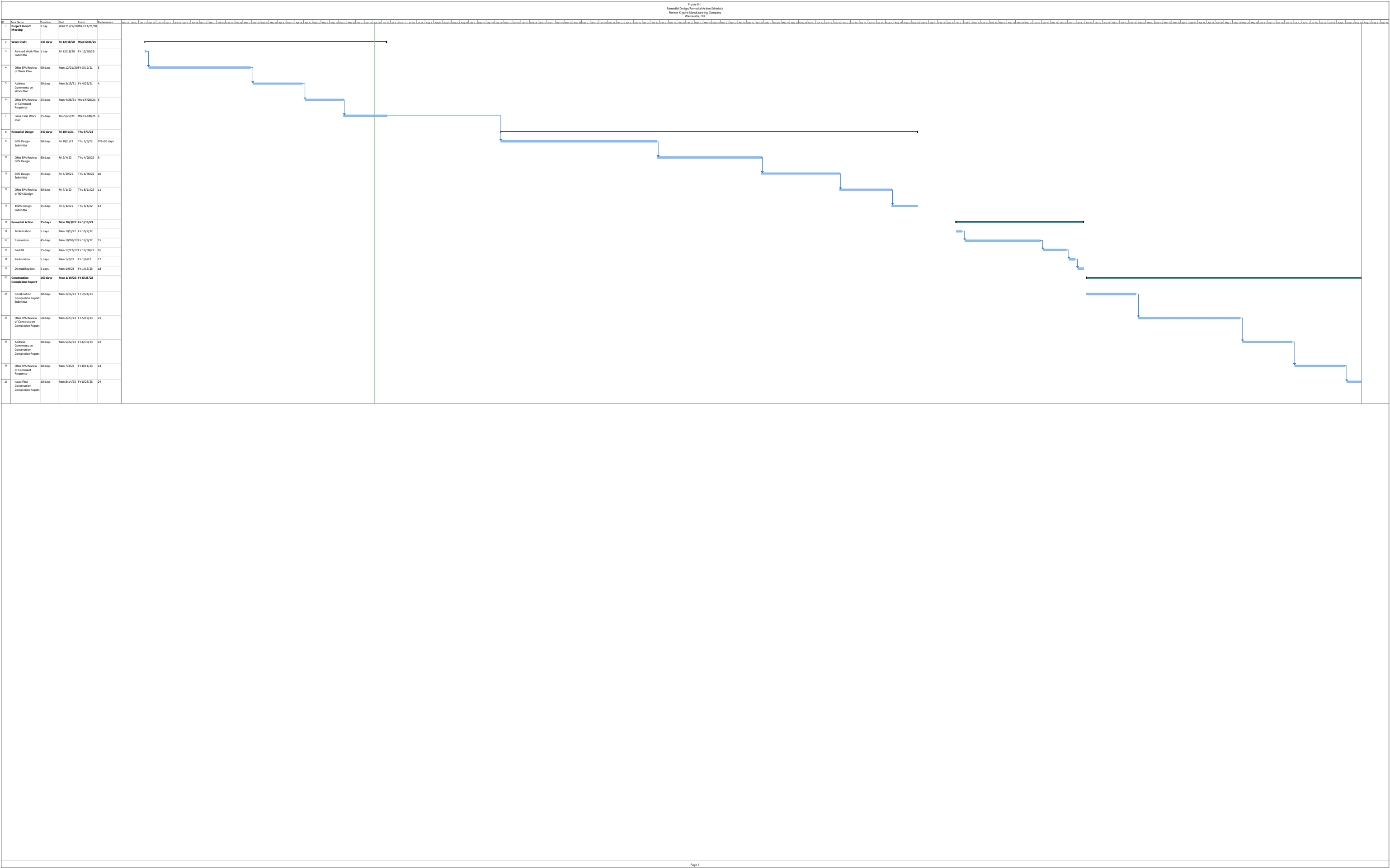














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Remedial Design/Remedial Action Work Plan  
Kilgore Manufacturing Company, Westerville, Ohio

Rev. 3  
June 2021

## ATTACHMENT A

### EXAMPLE ENVIRONMENTAL COVENANT

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**To be recorded with Deed  
Records - ORC § 317.08**

## **ENVIRONMENTAL COVENANT**

This Environmental Covenant is entered into by [*name all Owners of the Property and Holders*] and the Ohio Environmental Protection Agency ("Ohio EPA") pursuant to Ohio Revised Code ("ORC") §§ 5301.80 to 5301.92 for the purpose of subjecting the Property described herein ("the Property") to the activity and use limitations set forth herein.

This Environmental Covenant requires current and future Property owners to meet certain requirements, including, but not limited to:

- Comply with the activity and use limitations given by paragraph 5 that: [*Plain language summary of the activity and use limitations in paragraph 5*].
- Provide an annual compliance report to Ohio EPA by [*enter Day Month*] of each year, as required by paragraph 9, describing that the Property continues to be used in compliance with the activity and use limitations.
- Give notice to new property owners (also known as "transferees") upon conveyance, as required by paragraph 10, of the activity and use limitations and the recorded location of this Environmental Covenant.
- Notify Ohio EPA within 10 days of each conveyance, as required by paragraph 10, of the property that was conveyed and new owner's contact information.

WHEREAS, the Property is owned by [*name of Owner*], who resides or is located at [*address or location of owner*].

WHEREAS, the remedy for the Property includes the activity and use limitations set forth in this Environmental Covenant.

WHEREAS, the activity and use limitations protect against exposure to the [*hazardous substances / petroleum / hazardous substances and petroleum*] in [*soil / ground water / soil and ground water, or describe other affected media*] on or underlying the Property.

[*WHEREAS, the Property is the subject to an operation and maintenance (O&M) agreement that provides for a central management entity to oversee engineering controls to maintain site protectiveness.*]

Environmental Covenant  
Page 2

[EC Template, May 2018]

Now therefore, [*name of each Owner and Holder other than Owner, if any*] and Ohio EPA agree to the following:

1. Environmental Covenant. This instrument is an environmental covenant developed and executed pursuant to ORC §§ 5301.80 to 5301.92.

2. Property. This Environmental Covenant concerns an approximately \_\_\_\_\_-acre tract of real property located at [*Address of Property*], in [*County*], Ohio, and more particularly described in [*Attachment #*] attached hereto and incorporated by reference herein ("Property").

3. Owner. This Property is owned by [*Owner Name*] ("Owner"), [*with a place of business located*] at [*Address of Owner*].

4. Holder. Pursuant to ORC § 5301.81, the holder of this Environmental Covenant ("Holder") is the Owner listed above [*and if applicable [Name of other Holder not the Owner], [with place of business located] at [Address of other Holder]*].

5. Activity and Use Limitations. As part of the remedial action described in the Decision Document, Owner[s] hereby impose[s] and agree[s] to comply with the following activity and use limitations: [*Determine the activity and use limitations appropriate for the Property. Several types of restrictions may be appropriate as part of a remedial action, interim action, or closure plan where cleanup to an unrestricted land use is infeasible. These include: land use restrictions; ground water restrictions; disturbance restrictions; and construction restrictions. Each type of restriction must be considered on a site-specific basis to determine which restriction or combination of restrictions is suitable for the particular circumstances of the site or facility. Evaluate the possible use restrictions based on the nature of contamination, the type of affected media and the potential exposures. The restriction categories include: land use, ground water, disturbance and construction.*]

6. Running with the Land. This Environmental Covenant shall be binding upon the Owner, during the time that the Owner owns the Property or any portion thereof, and upon all assigns and successors in interest, including any Transferee, and shall run with the land, pursuant to ORC § 5301.85, subject to amendment or termination as set forth herein. The term "Transferee," as used in this Environmental Covenant, shall mean any future owner of any interest in the Property or any portion thereof, including, but not limited to, owners of an interest in fee simple, mortgagees, easement holders, and/or lessees.

7. Compliance Enforcement. Compliance with this Environmental Covenant may be enforced pursuant to ORC § 5301.91 and other applicable law. Failure to timely enforce compliance with this Environmental Covenant or the activity and use limitations contained herein by any party shall not bar subsequent enforcement by such party and shall not be deemed a waiver of the party's right to take action to enforce against any non-compliance. Nothing in this Environmental Covenant shall restrict the Director of Ohio EPA from exercising any authority under applicable law.

8. Rights of Access. Owner hereby grants to Ohio EPA's authorized representatives [*include, as applicable, name of local government and any Holders other than Owner, etc.; see ORC §§ 5301.82(A)(6) and 5301.91(A)*] the right of access to the Property for implementation or enforcement of this Environmental Covenant and shall require such access as a condition of any transfer of the Property or any portion thereof.

9. Compliance Reporting. Owner or Transferee, if applicable, shall annually submit to Ohio EPA [*include, as applicable, name of local government, any "Holders" other than Owner*] written documentation verifying that the activity and use limitations set forth herein remain in place and are being complied with. Documentation shall be due to Ohio EPA on July 1<sup>st</sup> of each year beginning the year after the effective date of this Environmental Covenant, unless otherwise directed by Ohio EPA.

10. Notice upon Conveyance. Each instrument hereafter conveying any interest in the Property or any portion thereof shall contain a notice of the activity and use limitations set forth in this Environmental Covenant, and provide the recorded location of this Environmental Covenant. The notice shall be substantially in the following form:

THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL COVENANT, RECORDED IN THE DEED OR OFFICIAL RECORDS OF [name of County Recorder's Office] ON \_\_\_\_\_, 201\_\_, IN [DOCUMENT \_\_\_\_\_, or BOOK\_\_\_\_, PAGE \_\_\_\_]. THE ENVIRONMENTAL COVENANT CONTAINS THE FOLLOWING ACTIVITY AND USE LIMITATIONS:

*[List or summarize the type of activity and use limitations in Paragraph 5 of the environmental covenant (i.e., a limitation to commercial or industrial land uses, a prohibition on ground water extraction and use, and a limitation on building occupancy – remedy or demonstration obligation).]*

Owner or Transferee, if applicable, shall notify Ohio EPA [*and "Holders" other than the Owner, if any*] within [*ten (10)*] days after each conveyance of an interest in the



Environmental Covenant  
Page 4

[EC Template, May 2018]

Property or any portion thereof. The notice shall include the name, address, and telephone number of the Transferee, a copy of the deed or other documentation evidencing the conveyance, and a survey map that shows the boundaries of the property being transferred.

11. Representations and Warranties. Owner hereby represents and warrants to the other signatories hereto:

- A. that the Owner is the sole owner of the Property;
- B. that the Owner holds fee simple title to the Property and that the Owner conducted a current title search that shows that the Property *[choose one: is subject to [or] is not subject to any]* interests or encumbrances that conflict with the activity and use limitations set forth in this Environmental Covenant;

*[If other interests or encumbrances on the Property conflict with the activity and use limitations set forth in this Environmental Covenant, add the following provision as a separate subparagraph:*

*To the extent that any other interests in or encumbrances on the Property conflict with the activity and use limitations set forth in this Environmental Covenant, the persons who own such interests or hold such encumbrances have agreed to subordinate such interests or encumbrances to the Environmental Covenant, pursuant to ORC § 5301.86, and the subordination agreement(s) (attached as [Attachment #] to this Environmental Covenant; [or] recorded at [name of County Recorder's Office].)]*

- C. that the Owner has the power and authority to enter into this Environmental Covenant, to grant the rights and interests herein provided and to carry out all obligations hereunder;
- D. that this Environmental Covenant will not materially violate or contravene or constitute a material default under any other agreement, document or instrument to which Owner is a party or by which Owner may be bound or affected;

- E. that the Owner has identified all other persons that own an interest in or hold an encumbrance on the Property, and, if applicable, notified such persons of the Owner's intention to enter into this Environmental Covenant.

12. Amendment or Termination. This Environmental Covenant may be amended or terminated by consent of all of the following: the Owner, or a Transferee, if applicable; [*"Holders" other than Owner, if any;*] and the Director of the Ohio EPA, pursuant to ORC §§ 5301.82 and 5301.90 and other applicable law. The term, "Amendment," as used in this Environmental Covenant, shall mean any changes to the Environmental Covenant, including the activity and use limitations set forth herein, or the elimination of one or more activity and use limitations so long as there is at least one limitation remaining. The term, "Termination," as used in this Environmental Covenant, shall mean the elimination of all activity and use limitations set forth herein and all other obligations under this Environmental Covenant.

This Environmental Covenant may be amended or terminated only by a written instrument duly executed by the Director of Ohio EPA and by the Owner or Transferee, if applicable, of the Property or any portion thereof [, and *"Holders" or their assignees, if any*]. Within thirty (30) days of signature by all requisite parties on any amendment or termination of this Environmental Covenant, the Owner or Transferee, if applicable, shall file such instrument for recording with the [*name of County Recorder's Office*], and shall provide a file- and date-stamped copy of the recorded instrument to Ohio EPA [*and "Holders" or their assignees, if any*].

13. Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

14. Governing Law. This Environmental Covenant shall be governed by and interpreted in accordance with the laws of the State of Ohio.

15. Recordation. Within [*thirty (30)*] days after the date of the final required signature, Owner shall file this Environmental Covenant for recording, in the same manner as a deed to the Property, with the [*name of County Recorder's Office*].

16. Effective Date. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded as a deed record for the Property with the [*name of County Recorder's Office*].

17. Distribution of Environmental Covenant. Owner shall distribute a file- and date-stamped copy of the recorded Environmental Covenant to: Ohio EPA [, *include name other parties to the Environmental Covenant, if any*] and [*include the appropriate governmental entity applicable to property: City / County / Township*].

18. Notice. Unless otherwise notified in writing by any party hereto or Ohio EPA, any document or communication required by this Environmental Covenant shall be submitted to:

As to Ohio EPA:

Ohio EPA – Central Office  
Division of Environmental Response and Revitalization  
50 West Town Street  
Columbus, Ohio 43216  
Attn.: DERR Records Management Officer

Or, send electronically to: [records@epa.ohio.gov](mailto:records@epa.ohio.gov)

And

Ohio EPA - [applicable district office]  
[District office address]  
Attn.: DERR Site Coordinator for [*Site Name*]

As to Owner:

[Name, title, or position]  
[Address]

[As to Holder:]

[Name, title, or position]  
[Address]

The undersigned represents and certifies that the undersigned is authorized to execute this Environmental Covenant.

Notary Public



Environmental Covenant  
Page 9

*[EC Template, May 2018]*

**OHIO ENVIRONMENTAL PROTECTION AGENCY**

---

Laurie A. Stevenson, Director

State of Ohio                    )  
  )       ss:  
County of Franklin            )

Before me, a notary public, in and for Franklin County, Ohio, personally appeared Laurie A. Stevenson, the Director of Ohio EPA, who acknowledged to me that she did execute the foregoing instrument on behalf of Ohio EPA.

IN TESTIMONY WHEREOF, I have subscribed my name and affixed my official seal this \_\_\_\_\_ day of \_\_\_\_\_, 202\_\_.

---

Notary Public



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# Appendix D

## RD/RA Guidance Document List

## Ohio EPA Division of Environmental Response and Revitalization (DERR)

## General Guidance Document and Reference List to Support Remedial Response Program Statements of Work and Orders

### Purpose and Use

This document provides an evolving “working list” of primary guidance documents and references which may be added as needed to the core guidance lists established for RI/FS and RD/RA statements of work (SOW) and orders. This general list of guidance and references is periodically updated by Ohio EPA. Ohio EPA recognizes that some remedial response sites may have conditions or circumstances that are not fully addressed by the documents in this working list of general guidance documents and references. Accordingly, Remedial Response orders should be supported as necessary by current guidance, professional publications, research and U.S. EPA and Ohio EPA policy directives. For sites where activities are conducted in response to an administrative or judicial order, the list of selected reference documents will be attached to the order as an appendix and will govern the work conducted. Ohio EPA reserves the right to modify this list as needed to fully and appropriately address site conditions.

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**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

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General Guidance and Reference List for SOWs and Orders**

**Analytical Methods & U.S. EPA Contract Laboratory Program**

U.S. EPA & Other Guidance

[\*SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods\*](#); Hazardous Waste Test Methods / SW-846 ([webpage](#))

[\*Standard Methods for the Examination of Water and Waste Water\*](#), American Public Health Association, 22<sup>nd</sup> Edition and updates ([webpage](#)) ; [\*updated table of standard methods approved under the Clean Water Act\*](#), and [\*updated table of standard methods approved under the Safe Drinking Water Act\*](#)

[\*U.S. EPA Drinking Water Analytical Methods\*](#), U.S. EPA webpage

[\*U.S. EPA Superfund Analytical Services / Contract Laboratory Program\*](#), U.S. EPA webpage

[\*Compendium of Methods for Determination of Toxic Organic Compounds in Ambient Air\*](#), 2<sup>nd</sup> Edition, U.S. EPA, EPA/625/R-96/010b, January 1999, and [\*Ambient Monitoring Technology Information Center, Air Toxics – Monitoring Methods\*](#)

[\*Introduction to the Contract Laboratory Program\*](#), U.S. EPA, EPA 540-R-07-02, January 2007

[\*Contract Laboratory Program Guidance for Field Samplers\*](#), U.S. EPA, EPA-540-R-014-013, October 2014

**Applicable or Relevant and Appropriate Requirements (ARARs)**

Ohio EPA Guidance

[\*Ohio EPA Rules and Laws\*](#), webpage (as applicable for ARARs)

[\*ARARs Table, Ohio EPA DERR Remedial Response Program\*](#) (provides a generic list of ARARs that is updated periodically and subject to change)

[\*Use of Applicable or Relevant and Appropriate Requirements \(ARARs\) in the Ohio EPA Remedial Response Program\*](#), U.S. EPA, DERR-00-RR-034, September 2003 (Draft)

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

U.S. EPA & Other Guidance

[\*Applicable or Relevant and Appropriate Requirements \(ARARS\)\*](#), U.S. EPA

[\*CERCLA Compliance with Other Laws Manual, Interim Final \(Part I\)\*](#), U.S. EPA, EPA/540/G-89/006, August 1988

[\*CERCLA Compliance with Other Laws Manual: Part II. Clean Act and Other Environmental Statutes and State Requirements\*](#), U.S. EPA, EPA/540/G-89/009, August 1989

[\*CERCLA Compliance with Other Laws Manual, CERCLA Compliance with State Requirements\*](#), U.S. EPA, EPA 9234.2-05/FS, December 1989

[\*Permits and Permit 'Equivalency' Processes for CERCLA On-site Response Actions\*](#), U.S. EPA, OWSER 9355.7-03, February 1992

[\*Clarification of the Role of Applicable, or Relevant and Appropriate Requirements in Establishing Preliminary Remediation Goals Under CERCLA\*](#), U.S. EPA, OSWER 9200.4-23, August 22, 1997

**Attainment of Cleanup Goals (Statistical Assessment Methods)**

U.S. EPA & Other Guidance

[\*Methods for Evaluating the Attainment of Cleanup Standards, Volume 1: Soils and Solid Media\*](#), U.S. EPA, EPA 230/02-89-042, February 1989

[\*Methods for Evaluating the Attainment of Cleanup Standards, Volume 2: Ground Water\*](#), U.S. EPA, EPA 230-R-92-014, July 1992

[\*Statistical Methods for Evaluating the Attainment of Cleanup Standards, Volume 3: Reference-Based Standards for Soils and Solid Media\*](#), U.S. EPA, EPA 230-R-94-004, December 1992

[\*An Overview of Methods for Evaluating the Attainment of Cleanup Standards for Soils, Solid Media, and Ground water, EPA Volumes 1, 2, and 3\*](#), prepared for U.S. EPA under Contract DE-AC06-76RLO 1830 by Pacific Northwest National Laboratory (U.S. DOE and Battelle), January 1996



## **Ohio EPA DERR Remedial Response Program General Guidance and Reference List for SOWs and Orders**

### **Background Guidance**

#### Ohio EPA Guidance

[\*Use of Background for Remedial Response Sites\*](#), Technical Decision  
Compendium, Ohio EPA DERR, August 2009

#### U.S. EPA & Other Guidance

[\*Engineering Forum Issue: Determination of Background Concentrations of Inorganics in Soils and Sediments at Hazardous Waste Sites\*](#), U.S. EPA, EPA/540/S-96/500, December 1995

[\*NAVFAC Guidance for Environmental Background Analysis, Volume I: Soil\*](#), NFESC User's Guide, UG-2049-ENV, prepared by Battelle Memorial Institute, Earth Tech, Inc., and NewFields, Inc., April 2002

[\*Role of Background in the CERCLA Cleanup Program\*](#), OSWER 9285.6-07P, April 2002

[\*Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites\*](#), U.S. EPA, EPA 540-R-01-003, September 2002

[\*Statistical Software ProUCL 5.0.00 for Environmental Applications for Data Sets with and without Nondetect Observations\*](#), U.S. EPA; [\*ProUCL Version 5.0.00 User Guide\*](#), U.S. EPA, EPA/600/R-07/041, September 2013; [\*ProUCL Version 5.0.00 Technical Guide\*](#), U.S. EPA, EPA/600/R-07/041, September 2013

[\*Geochemical and Mineralogical Data for Soils of the Conterminous United States\*](#), U.S. Geological Survey Data Series 801, 2013

### **Conceptual Site Models**

#### Ohio EPA Guidance

[\*Conceptual Site Models Guidance Document\*](#), Ohio EPA DERR, April 2015

#### U.S. EPA & Other Guidance

[\*Model Site Conceptual Model for RI/FS Baseline Risk Assessments of Human and Ecological Health\*](#), U.S. EPA Region 8 Superfund Technical Guidance, SOP # 8RA-05, December 1994

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[Environmental Cleanup Best Management Practices: Effective Use of the Project Life Cycle Conceptual Site Model](#), U.S. EPA, EPA 542-F-11-011, July 2011

[Standard Guide for Developing Conceptual Site Models for Contaminated Sites](#), ASTM E1689 – 95 (2014)

**Data Quality Assessment, Data Verification, and Data Validation**

Ohio EPA Guidance

[Tier I Data Validation Manual for the Ohio EPA Division of Environmental Response and Revitalization](#), Ohio EPA DERR, March 2012

U.S. EPA & Other Guidance

[Guidance for Data Quality Assessment: Practical Methods for Data Analysis \(EPA QA-G9, QA00 Update\)](#), U.S. EPA, EPA/600/R-96/084, July 2000

[Guidance on Environmental Data Verification and Data Validation \(QA/G-8\)](#), U.S. EPA, EPA/240/R-02/004, November 2002

[Data Quality Assessment: A Reviewer's Guide \(QA/G-9R\)](#), U.S. EPA, EPA/240/B-06/002, February 2006

[Data Quality Assessment: Statistical Tools for Practitioners \(QA/G-9S\)](#), U.S. EPA, EPA/240/B-06/003, February 2006

[U.S. EPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review \(SOM01.2\)](#), U.S. EPA, EPA-540-R-08-01, June 2008

[Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use](#), U.S. EPA, EPA-540-R-08-005, January 2009 and [OSWER Directive No. 9200.1-85](#)

[U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review \(ISM01.2\)](#), U.S. EPA, EPA 540-R-10-011, January 2010

[U.S. EPA Contract Laboratory Program National Functional Guidelines for Chlorinated Dioxin/Furan Data Review](#), U.S. EPA, EPA-540-R-11-016, September 2011

[U.S. EPA National Functional Guidelines for Inorganic Superfund Data Review \(ISM02.2\)](#), U.S. EPA, EPA 540-R-013-001, August 2014

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[U.S. EPA National Functional Guidelines for Superfund Organic Methods Data Review \(SOM02.2\)](#), U.S. EPA, EPA 540-R-014-002, August 2014

**Data Quality Objectives**

Ohio EPA Guidance

[Data Quality Objectives Process Summary](#), DERR-00-DI-32, Ohio EPA DERR, January 2002

U.S. EPA & Other Guidance

[Data Quality Objectives Process for Superfund, Interim Final Guidance](#), U.S. EPA, EPA540-R-93-071, September 1993

[Data Quality Objectives Process for Hazardous Waste Site Investigations, EPA QA/G-4HW Final](#), U.S. EPA, EPA/600/R-00/007, January 2000

[Data Quality Objectives Decision Error Feasibility Trials Software \(DEFT\) – Users Guide, EPA QA/G-4D](#), U.S. EPA, EPA/240/B-01/007, September 2001; DEFT software is available at [EPA Quality System Agency-wide Quality System Documents](#)

[Current Perspectives in Site Remediation and Monitoring: Clarifying DQO Terminology Usage to Support Modernization of Site Cleanup Practice](#), U.S. EPA, EPA 542-R-01-014, October 2001

[Guidance on Systematic Planning Using the Data Quality Objectives Process, EPA QA/G-4](#), U.S. EPA, EPA/240/B-06/001, February 2006

[Systematic Planning: A Case Study for Hazardous Waste Site Investigations EPA QA/CS-1](#), U.S. EPA, EPA/240/B-06/00, February 2006

[Systematic Planning: A Case Study of Particulate Matter Ambient Air Monitoring EPA QA/CS-2](#), U.S. EPA, EPA/240/B-07/001, March 2007

**Data Usability in Risk Assessment**

U.S. EPA & Other Guidance

[Guidance for Data Usability in Risk Assessment \(Part A\)](#), U.S. EPA Office of Emergency and Remedial Response, Publication 9285.7-09A, April 1992

[Guidance for Data Usability in Risk Assessment \(Part B\)](#), U.S. EPA Office of Emergency and Remedial Response, Publication 9285.7-09B, May 1992

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

**Ecological Risk Assessment**

Ohio EPA Guidance

[\*Ecological Risk Assessment Guidance Document\*](#), Ohio EPA DERR, Revised July 2018

U.S. EPA & Other Guidance

[\*Ecological Soil Screening Level \(Eco-SSL\)\*](#), U.S. EPA

[\*ECOTOX Database\*](#), U.S. EPA

[\*Framework for Ecological Risk Assessment\*](#), U.S. EPA, EPA/630/R-92/001, February 1992

[\*Wildlife Exposure Factors Handbook \(Volumes I and II\)\*](#), U.S. EPA, EPA/600/R-93/187, December 1993

[\*Guidelines for Ecological Risk Assessment\*](#), U.S. EPA, EPA/630/R-95/002F, April 1998

[\*Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final\*](#), U.S. EPA, EPA 540-R-97/006, June 1997

[\*Issuance of Final Guidance: Ecological Risk Assessment and Risk Management Principles for Superfund Sites\*](#), U.S. EPA, OSWER Directive 9285.7-28 P, October 1999

[\*Guidance for Developing Ecological Soil Screening Levels\*](#), U.S. EPA, OSWER Directive 9285.7-55, February 2005

**Federal Facilities, Munitions, and Explosives**

U.S. EPA & Other Guidance

[\*Cleanups at Federal Facilities\*](#), U.S. EPA webpage

[\*Uniform Federal Policy for Quality Assurance Project Plans – Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs, Part 1: UFP-QAPP Manual, Final\*](#), Intergovernmental Data Quality Task Force, EPA: EPA-505-B-04-900A, DoD: DTIC ADA 427785, Version 1, March 2005

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[Workbook for Uniform Federal Policy for Quality Assurance Project Plans – Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs, Part 2A: UFP-QAPP Workbook, Final](#), Intergovernmental Data Quality Task Force, EPA: EPA-505-B-04-900C, DoD: DTIC ADA 427486, Version 1, March 2005

[Uniform Federal Policy for Quality Assurance Project Plans: Part 2B, Quality Assurance/Quality Control Compendium: Minimum QA/QC Activities, Final](#), Intergovernmental Data Quality Task Force, EPA: EPA-505-B-04-900B, DoD: DTIC ADA 426957, Version 1, March 2005

[Handbook on the Management of Munitions Response Actions, Interim Final](#), U.S. EPA, OSWER, EPA 500-B-01-001, May 2005

[Munitions and Explosives of Concern Hazard Assessment Methodology, Interim](#), U.S. EPA, U.S. Department of Defense and U.S. Department of the Interior, EPA: 505B08001, October 2008

[Quality Considerations for Munitions Response Projects](#), The Interstate Technology & Regulatory Council Unexploded Ordnance Team, UXO-5, October 2008

[Program Management Manual for Military Munitions Response Program \(MMRP\) Active Installations: Information for Managing and Overseeing MMRP Projects at US Army Active Installations, Final](#), U.S. Army Environmental Command, September 2009

[EPA Munitions Response Guidelines, Interim Final](#), U.S. EPA, OWSER Directive 9200.1-101, July 2010

**Geologic/Hydrogeologic Investigation and Modeling**

Ohio EPA Guidance

[Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring Programs](#), Ohio EPA Division of Drinking and Ground Waters, February 1995 (as updated)

[Vadose Zone Modeling in RCRA Closure](#), Ohio EPA Division of Hazardous Waste Management, January 2005

[Soil Leaching to Ground Water Evaluation for Total Petroleum Hydrocarbons \(TPH\) Guidance](#), Ohio EPA DERR, January 2014

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

U.S. EPA & Other Guidance

[Superfund Ground Water Issue: Facilitated Transport](#), U.S. EPA, EPA/540/4-89/003, August 1989

[Ground Water Issue: Basic Concepts of Contaminant Sorption at Hazardous Waste Sites](#), U.S. EPA, EPA/540/4-90/053, October 1990

[Ground Water Issue: Fundamentals of Ground-Water Modeling](#), U.S. EPA, EPA/540/S-92/005, April 1992

[Handbook of RCRA Ground-Water Monitoring Constituents: Chemical and Physical Properties](#), EPA/530/R-92/022, September 1992

[Ground Water Issue: Low-Flow \(Minimal Drawdown\) Ground-Water Sampling Procedures](#), U.S. EPA, EPA/540/S-95/504, April 1996

[BIOSCREEN, Natural Attenuation Decision Support System, Version 1.4](#), U.S. EPA, July 1997; [BIOSCREEN, Natural Attenuation Support System – User’s Manual, Version 1.3](#), U.S. EPA, 600/R-96/087, August 1996

[Ground Water Issue: Fundamentals of Soil Science as Applicable to Management of Hazardous Wastes](#), U.S. EPA, EPA/540/S-98/500, April 1999

[BIOCHLOR, Natural Attenuation Decision Support System, Version 2.2](#), U.S. EPA, June 2002; [BIOCHLOR, Natural Attenuation Decision Support System – User’s Manual Addendum, Version 2.2](#), U.S. EPA (National Risk Management Research Laboratory), March 2002; [BIOCHLOR, Natural Attenuation Decision Support System – User’s Manual, Version 1.0](#), U.S. EPA, EPA/600/R-00/008, January 2000

[Proceedings of the Ground-Water/Surface-Water Interactions Workshop](#), and [Poster Session Abstracts](#), U.S.EPA, EPA 542/R-00/007, July 2000

[Monitoring Well Comparison Study: An Evaluation of Direct-Push Versus Conventional Monitoring Wells](#), A Study Conducted by BP Corporation North America Inc. and U.S EPA Regions 4 and 5 Underground Storage Tank Programs, May 2002

[Groundwater Sampling and Monitoring with Direct Push Technologies](#), U.S. EPA, EPA 540/R-04/005, August 2005

[The Use of Direct-push Well Technology for Long-term Environmental Monitoring in Groundwater Investigations](#), The Interstate Technology & Regulatory Council (ITRC) Sampling, Characterization and Monitoring Team, March 2006



**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[Vadose Zone Leaching \(VLEACH\), Version 2.2a](#), U.S. EPA, May 2007; [VLEACH: A One-Dimensional Finite Difference Vadose Zone Leaching Model, Version 2.2a](#), U.S. EPA, Office of Research and Development, Robert S. Kerr Environmental Research Laboratory, Center for Subsurface Modeling Support, May 2007

[Natural Attenuation Software \(NAS\), Version 2.2.3](#), Naval Facilities Engineering Command (NAVFAC), Virginia Polytechnic Institute and State University, and the [United States Geological Survey](#), May 2008

[Use and Measurement of Mass Flux and Mass Discharge](#), The Interstate Technology & Regulatory Council Integrated DNAPL Site Strategy Team, MASSFLUX-1, August 2010

**Health and Safety**

U.S. EPA & Other Guidance

[U.S. Department of Labor, Occupational Safety & Health Administration \(OSHA\) Laws and Regulations](#), United States Department of Labor – OSHA website

[29 CFR 1910.120: Hazardous Waste Operations and Emergency Response](#), U.S. Department of Labor – OSHA website

[29 CFR 1910.134: Respiratory Protection](#), U.S. Department of Labor – OSHA website

[29 CFR 1926: Construction](#), U.S. Department of Labor, OSHA – OSHA website

[CERCLA Section 111\(c\)\(6\)](#), U.S. Senate Committee on Environmental & Public Works website

[Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities](#), DHHS (NIOSH) Publication No. 85-115, October 1985

[U.S. EPA Standard Operating Safety Guides](#), Publication 9285.1-03, PB92-963414, June 1992

[NIOSH Pocket Guide to Chemical Hazards \(online\)](#), Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH)

[2015 American Conference of Governmental Industrial Hygienists \(ACGIH\) Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices \(TLVs and BEIs\)](#), ACGIH Publication #0115, ISBN: 978-1-607260-77-6

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

**Human Health Risk Assessment**

Ohio EPA Guidance

[\*Use of Risk-Based Numbers in the Remedial Response Process Overview\*](#), Ohio EPA DERR, June 2005

[\*Application of Bioavailability in the Assessment of Human Health Hazards and Cancer Risk\*](#), Ohio EPA DERR, August 2009

[\*Human Health Cumulative Carcinogenic Risk and Non-carcinogenic Hazard Goals for DERR Remedial Response Program\*](#), Ohio EPA DERR, August 2009

[\*Assessing Compounds without Formal Toxicity Values Available for Use in Human Health Risk Assessment\*](#), Ohio EPA DERR, April 2010

U.S. EPA & Other Guidance

[\*Risk Assessment\*](#), U.S. EPA

[\*Integrated Risk Information System \(IRIS\)\*](#), U.S. EPA

[\*Superfund Exposure Assessment Manual\*](#), U.S. EPA, EPA/540/1-88/001, OWSER Directive 9285.5-1, April 1988

[\*Risk Assessment Guidance for Superfund \(RAGS\) Volume 1: Human Health Evaluation Manual \(Part A, Interim Final\)\*](#), U.S. EPA, EPA/540/1-89/002, December 1989

[\*Supplemental Guidance to RAGS: Calculating the Concentration Term\*](#), U.S. EPA, OSWER Publication 9285.7-081, May 1992

[\*Risk Assessment Guidance for Superfund, Volume 1: Human Health Evaluation Manual \(Part B, Development of Risk-based Preliminary Remediation Goals, Interim\)\*](#), U.S. EPA, EPA/540/R-92/003, December 1991

[\*Risk Assessment Guidance for Superfund, Volume 1: Human Health Evaluation Manual, \(Part C, Risk Evaluation of Remedial Alternatives, Interim\)\*](#), U.S. EPA Office of Emergency and Remedial Response, Publication 9285.7-01C, October 1991

[\*Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual \(Part D, Standardized Planning, Reporting and Review of Superfund Risk Assessments, Final\)\*](#), U.S. EPA Office of Emergency and Remedial Response, Publication 9287.7-47, December 2001

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[\*Risk Assessment Guidance for Superfund: Volume III – Part A, Process for Conducting Probabilistic Risk Assessment\*](#), U.S. EPA Office of Emergency and Remedial Response, EPA 540-R-02-002, OWSER 9285.7-45, December 2001

[\*Calculating Upper Confidence Limit for Exposure Point Concentrations at Hazardous Waste Sites\*](#), U.S.EPA, OSWER Directive 9285.6-10, December 2002

[\*Human Health Toxicity Values in Superfund Risk Assessments\*](#), memorandum from Michael B. Cook, Director, U.S. EPA Office of Superfund Remediation and Technology Innovation, to Superfund National Policy Managers, Regions 1-10, OSWER Directive 9285.7-53, December 3, 2003

[\*Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual \(Part E, Supplemental Guidance for Dermal Risk Assessment, Final\)\*](#), U.S. EPA Office of Emergency and Remedial Response, EPA/540/R/99/005, OSWER 9285.7-02EP, PB99-963312, July 2004

[\*Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual \(Part F, Supplemental Guidance for Inhalation Risk Assessment, Final\)\*](#), U.S. EPA Office of Superfund Remediation and Technology Innovation, EPA-540-R-070-002, OSWER 9285.7-82, January 2009

[\*Exposure Factors Handbook: 2011 Edition\*](#), U.S. EPA, EPA/600/R-090/052F, September 2011

[\*Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors\*](#), U.S. EPA Office of Superfund Remediation and Technology Innovation, OSWER Directive 9200.1-120, February 2014; also [\*Frequently Asked Questions \(FAQs\) About Update of Standard Default Exposure Factors\*](#), U.S. EPA, September 2015

## **Institutional Controls**

### U.S. EPA & Other Guidance

[\*Superfund Institutional Controls: Guidance and Policy\*](#), U.S. EPA webpage

[\*Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups\*](#), U.S. EPA, EPA 540-F-99-005, September 2000

[\*Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites\*](#), U.S. EPA, EPA-540-R-09-001, December 2012

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[Institutional Controls: A Guide to Preparing Institutional Control Implementation and Assurance Plans at Contaminated Sites](#), U.S. EPA, EPA-540-R-08-002, December 2012

**Landfills, Waste Containment Facilities, and Engineered Barriers**

Ohio EPA Guidance

[Geotechnical and Stability Analyses for Ohio Waste Containment Facilities](#), Ohio EPA Geotechnical Resources Group (GeoRG), September 14, 2004

U.S. EPA & Other Guidance

[Technical Guidance Document: Final Covers on Hazardous Waste Landfills and Surface Impoundments](#), U.S. EPA, EPA-530-SW-89-047, July 1989

[Seminar Publication - Requirements for Hazardous Waste Landfill Design, Construction, and Closure](#), U.S. EPA, EPA/625/4-89/022, August 1989

[Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites](#), U.S. EPA, EPA/540/P-91/001, February 1991

*Superfund Accelerated Cleanup Bulletins: Presumptive Remedies for Municipal Landfill Sites*, U.S. EPA Office of Solid Waste and Emergency Response Publication 9203.1-02I: [April 1992, Vol. 1, No. 1](#); [August 1992, Vol. 1, No. 3](#); and [February 1993, Vol. 2, No. 1](#)

[Presumptive Remedy for CERCLA Municipal Landfill Sites](#), U.S. EPA, EPA 540-F-93-035, September 1993

[MSW Landfill Criteria Technical Manual](#), U.S. EPA, EPA530-R-93-017, November 1993

[Feasibility Study Analysis for CERCLA Municipal Landfill Sites](#), U.S. EPA, EPA540/R-94/081, August 1994

[Presumptive Remedies: CERCLA Landfill Caps RI/FS Data Collection Guide](#), U.S. EPA, EPA/540/F-95/009, August 1995

[Quality Assurance and Quality Control for Waste Containment Facilities \(Summary\)](#), U.S. EPA, EPA/600/SR-93/182, September 1995

[Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills](#), U.S. EPA, EPA/540/F-96/020, December 1996

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[Implementing Presumptive Remedies: A Notebook of Guidance and Resource Materials](#), U.S. EPA, EPA 540-R-97-029, October 1997

[Evaluation of Subsurface Engineered Barriers at Waste Sites](#), U.S. EPA, EPA 542-R-98-005, August 1998

[Control of Subsurface Contaminant Migration by Vertical Engineered Barriers](#), U.S. EPA, EPA/600/F-10/017, July 2010

**Land Redevelopment and Reuse**

U.S. EPA & Other Guidance

[Superfund Redevelopment](#), U.S. EPA

[Land Use in the CERCLA Remedy Selection Process](#), U.S. EPA, OSWER Directive No. 9355.7-04, May 25, 1995

[Reuse Considerations During CERCLA Response Actions](#), U.S. EPA, OSWER 9365.0-30

[Guidance for Preparing Superfund Ready for Reuse Determinations](#), U.S. EPA, OSWER 9365.0-33

[Reuse of CERCLA Landfill and Containment Sites](#), U.S. EPA, EPA 540-F-99-015, September 1999

[Reuse Assessments: A Tool To Implement The Superfund Land Use Directive](#), U.S. EPA, OSWER 9355.7-06P, June 4, 2001

[Reusing Cleaned Up Superfund Sites: Golf Facilities Where Waste is Left on Site](#), U.S. EPA, EPA-540-R-03-003, October 2003

[Considering Reasonably Anticipated Future Land Use and Reducing Barriers to Reuse at EPA-lead Superfund Remedial Sites](#), U.S. EPA, OSWER Directive 9355.7-19, March 17, 2010

**Lead**

U.S. EPA & Other Guidance

[Lead at Superfund Sites](#), U.S. EPA

[Lead at Superfund Sites: Software and User's Manuals](#), U.S. EPA (Integrated Exposure Uptake Biokinetic Model for Lead in Children and Adult Lead Methodology)

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[USGS Background Soil – Lead Survey](#), USGS

[Memorandum: OSWER Directive: Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities](#), U.S. EPA, OSWER Directive #9355.4-12, August 1994

[Memorandum: OSWER Directive: Clarification to the 1994 Revised Interim Soil Lead \(Pb\) Guidance for CERCLA Sites and RCRA Corrective Action Facilities](#), U.S. EPA, EPA/540/F-98/030, August 1998

[Short Sheet: TRW Recommendations for Sampling and Analysis of Soil at Lead \(Pb\) Sites](#), U.S. EPA, EPA #540-F-00-010, April 2000

[Assessing Intermittent or Variable Exposures at Lead Sites](#), U.S. EPA, EPA-540-R-03-008, OSWER # 9285.7-76

[TRW Recommendations for Performing Human Health Risk Analysis on Small Arms Shooting Ranges](#), U.S. EPA, OSWER #9285.7-37, March 2003

[Superfund Lead-Contaminated Residential Sites Handbook](#), U.S. EPA, OSWER 9285.7-50, August 2003

[Chemical Stabilization of Lead in Small Arms Firing Range Soils](#), U.S. Army Corps of Engineers, ERDC/EL TR-03-20, September 2003

[Best Management Practices for Lead at Outdoor Shooting Ranges](#), U.S. EPA Region 2, EPA-902-B-01-001, Revised June 2005

[Technical Review Workgroup Recommendations Regarding Gardening and Reducing Exposure to Lead-Contaminated Soils](#), U.S. EPA, OSWER 9200.2-142, May 2014

**Monitored Natural Attenuation**

Ohio EPA Guidance

[Remediation Using Monitored Natural Attenuation](#), Ohio EPA DERR Remedial Response Program Fact Sheet, January 2001

[Distinction between Monitored Natural Attenuation and Enhanced Monitoring at DERR Remedial Response Sites](#), Ohio EPA DERR Technical Decision Compendium, October 2002



**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

U.S. EPA & Other Guidance

*Natural Attenuation of Hexavalent Chromium in Ground Water and Soils – EPA Ground Water Issue*, U.S. EPA, EPA/540/5-94/505, October 1994

*Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water*, U.S. EPA, EPA/600/R-98/128, September 1998

*Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites*, U.S. EPA, OSWER Directive 9200.4-17P, April 1999

*Microbial Processes Affecting Monitored Natural Attenuation of Contaminants in the Subsurface – Ground Water Issue*, U.S. EPA, EPA/540/S-99/001, September 1999

*Natural Attenuation for Groundwater Remediation*, Committee on Intrinsic Remediation, Water Science and technology Board and Board on Radioactive Waste Management, Commission on Geosciences, Environment, and Resources, National Academy of Sciences, 2000, ISBN 0-309-06932-7

*Calculation and Use of First-Order Rate Constants for Monitored Natural Attenuation Studies*, U.S. EPA, EPA/540/S-02/500, November 2002

*Performance Monitoring of MNA Remedies for VOCs in Ground Water*, U.S. EPA, EPA/600/R-04/027, April 2004

*Natural Attenuation of Chlorinated Solvent Ground-Water Plumes Discharging into Wetlands*, U.S. Geological Survey, Scientific Investigations Report 2004-5220, 2004

*Monitored Natural Attenuation of Inorganic Contaminants in Ground Water – Volume I, Technical Basis for Assessment*, U.S. EPA, EPA/600/R-07/139, October 2007

*A Guide for Assessing Biodegradation and Source Identification of Organic Ground Water Contaminants Using Compound-Specific Isotope Analysis (CSIA)*, U.S. EPA, EPA/600/R-08/148, December 2008

*Identification and Characterization Methods for Reactive Minerals Responsible for Natural Attenuation of Chlorinated Organic Compounds in Ground Water*, U.S. EPA, U.S. EPA/600/R-09/115, December 2009

*Framework for Site Characterization for Monitored Natural Attenuation of Volatile Organic Compounds in Ground Water*, U.S. EPA, EPA 600/R-12/712, December 2012

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

**Natural Resource Damage Assessments**

U.S. EPA & Other Guidance

[Natural Resource Damages](#), U.S. EPA

**Non-Aqueous Phase Liquid (LNAPL, DNAPL) Assessment**

U.S. EPA & Other Guidance

[Ground Water Issue: Dense Nonaqueous Phase Liquids](#), U.S. EPA, EPA/540/4-91-002, March 1991

[Evaluation of the Likelihood of DNAPL Presence at NPL Sites, National Results](#), U.S. EPA, EPA 540R-93-073, September 1993

[DNAPL Site Characterization](#), U.S. EPA, EPA/540/F-94/049, September 1994

[Ground Water Issue: Light Nonaqueous Phase Liquids](#), U.S. EPA, EPA/540/S-95/500, July 1995

[Dense Non-Aqueous Phase Liquids \(DNAPLs\): Review of Emerging Characterization and Remediation Technologies](#), Interstate Technology and Regulatory Cooperation (ITRC) Work Group, DNAPLs/Chemical Oxidation Work Team, DNAPLs-1, June 2000

[An Introduction to Characterizing Sites Contaminated with DNAPLs](#), The Interstate Technology & Regulatory Council (ITRC) Dense Nonaqueous Phase Liquids Team, DNAPLs-4, September 2003

[Site Characterization Technologies for DNAPL Investigations](#), U.S. EPA, EPA 542-R-04-017, September 2004

[Ground Water Issue: Assessment and Delineation of DNAPL Source Zones at Hazardous Waste Sites](#), U.S. EPA, EPA/600/R-09/119, September 2009

**Oversight**

U.S. EPA & Other Guidance

[Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, Interim Final](#), U.S. EPA, EPA/540/G-90/001, April 1990

[Remedial Design/Remedial Action Handbook](#), U.S. EPA, EPA 540/R-95/059, June 1995

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[Using RCRA's "Results-Based Approaches and Tailored Oversight Guidance" when Performing Superfund PRP Oversight](#), U.S. EPA Memorandum, December 2006 [Results-Based Approaches and Tailored Oversight Guidance for Facilities Subject to Corrective Action Under Subtitle C of the Resource Conservation and Recovery Act, EPA 530-R-03-012, September 2003 is attached]

[Superfund Oversight Guidance](#), U.S. EPA, January 24, 2007 (Memorandum from Susan E. Bromm, Director, Office of Site Remediation Enforcement)

**Presumptive Remedies (see "Landfills" also)**

U.S. EPA & Other Guidance

[Presumptive Remedies: Policy and Procedures \(Quick Reference Fact Sheet\)](#), U.S. EPA, EPA 540-F-93-047, September 1993

[Presumptive Remedies: Site Characterization and Technology Selection for CERCLA Sites with Volatile Organic Compounds in Soils](#), U.S. EPA, EPA 540-F-93-048, September 1993

[Presumptive Remedies for Soils, Sediments, and Sludges at Wood Treater Sites](#), U.S. EPA, EPA/540/R-95/128, December 1995

[User's Guide to the VOCs in Soils Presumptive Remedy](#), U.S. EPA, EPA 540/F-96/008, July 1996

[Presumptive Response Strategy and Ex-Situ Treatment Technologies for Contaminated Ground Water at CERCLA Sites, Final Guidance](#), U.S. EPA, EPA 540/R-96/023, October, 1996

[Presumptive Remedy: Supplemental Bulletin, Multi-Phase Extraction \(MPE\) Technology for VOCs in Soil and Groundwater](#), U.S. EPA, EPA 540-F-97-004, April 1997

[Presumptive Remedy for Metals-in-Soil Sites](#), U.S. EPA, EPA 540-F-98-054, September 1999

**Quality Assurance Project Plans (QAPPs) and Quality Assurance**

Ohio EPA Guidance

[Guidelines and Specifications for Preparing Quality Assurance Project Plans](#), DERR-00-RR-008, Ohio EPA DERR, September 1998

[Laboratory and Field Data Screening for Preparing Quality Assurance Project Plans](#), DI-00-034, Ohio EPA DERR, August 2005

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

U.S. EPA & Other Guidance

[\*Technical Guidance Document: Construction Quality Assurance and Quality Control for Waste Containment Facilities\*](#), U.S. EPA, EPA/600/R-93/182, September 1993

[\*Guidance on Technical Audits and Related Assessments for Environmental Data Operations, EPA QA/G-7\*](#), U.S. EPA, EPA/600/R-99/080, January 2000; [\*May 2006 reissue notice\*](#)

[\*EPA Requirements for Quality Management Plans, EPA QA/R-2\*](#), U.S. EPA, EPA/240/B-01/002, March 2001; [\*May 2006 reissue notice\*](#)

[\*Guidance for Preparing Standard Operating Procedures, EPA QA/G-6\*](#), U.S. EPA, EPA/240/B-01/004, April 2007

[\*Guidance for Quality Assurance Project Plans, EPA QA/G-5\*](#), U.S. EPA, EPA/240/R-02-009, December 2002

[\*Guidance for Quality Assurance Plans for Modeling, EPA QA/G-5M\*](#), U.S. EPA, EPA/240-R02/007, December 2002

[\*Guidance on Choosing a Sampling Design for Environmental Data Collection for Use in Developing a Quality Assurance Project Plan, EPA QA/G-5S\*](#), U.S. EPA, EPA/240/R-02/005, December 2002

[\*Guidance for Geospatial Data Quality Assurance Project Plans, EPA QA/G-5G\*](#), U.S. EPA, EPA/240/R-03/003, March 2003

[\*Guidance on Quality Assurance for Environmental Technology Design, Construction and Operation, EPA QA/G-11\*](#), U.S. EPA, EPA/240/B-05/001, January 2005

**Remedial Alternative Evaluation, Remedy Selection, and Proposed Plans**

Ohio EPA Guidance

[\*Procedures for Evaluation of Response Action Alternatives and Remedy Selection for Remedial Response Program Sites\*](#), Ohio EPA DERR, Policy DERR-00-RR-019, Revised September 14, 1999

U.S. EPA & Other Guidance

[\*Key Principles of Remedy Selection\*](#), U.S. EPA website

[\*Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions\*](#), U.S. EPA, OWSER Directive 9355.0-30, April 22, 1991

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[\*A Guide to Principal and Low level Threat Wastes\*](#), U.S. EPA, OSWER 9380.3-06FS, November 1991

[\*Selecting a Combined Response Action Approach for Noncontiguous CERCLA Facilities to Expedite Cleanups\*](#), U.S. EPA, OSWER Directive No. 9355.3-14FS, April 1992

[\*Land Use in the CERCLA Remedy Selection Process\*](#), U.S. EPA, OSWER Directive No. 9355.7-04, May 25, 1995

[\*Coordination between RCRA Corrective Action and Closure and CERCLA Site Activities\*](#), U.S. EPA, September 24, 1996

[\*The Role of Cost in the Superfund Remedy Selection Process\*](#), U.S. EPA, EPA 540/F-96/018, September 1996

[\*Rules of Thumb for Superfund Remedy Selection\*](#), U.S. EPA, EPA 540-R-97-013, August 1997

[\*A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents\*](#), U.S. EPA, EPA 540-R-98-031, July 1999

**Remedial Design and Remedial Action (RD/RA)**

**General RD/RA References**

Ohio EPA Guidance

[\*State of Ohio Model Statement of Work for Remedial Design and Remedial Action\*](#), Ohio EPA DERR, August 30, 2004

U.S. EPA & Other Guidance

[\*Remedial Design/Remedial Action Handbook\*](#), U.S. EPA, EPA 540/R-95/059, June 1995

[\*Guidance for Scoping the Remedial Design\*](#), U.S. EPA, EPA/540/R-95/025, March 1995

[\*Superfund Post-Construction Completion: An Overview\*](#), U.S. EPA, EPA 540/F/01/009, June 2001

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

***Bioremediation***

U.S. EPA & Other Guidance

[\*Cost and Performance Reporting for In Situ Bioremediation Technologies \(Final\)\*](#), The Interstate Technology and Regulatory Cooperation (ITRC) Work Group *In Situ* Bioremediation Technical Task Team *in partnership with* the Bioremediation Consortium of the Remediation technology Development Forum, December 1997

[\*Interstate Technology and Regulatory Cooperation Work Group \(ITRC\) In Situ Bioremediation Work Team, Closure Criteria Focus Group, FY-97 Report \(Final\)\*](#), March 3, 1998

[\*General Protocol for Demonstration of In Situ Bioremediation Technologies \(Revised Final\)\*](#), The Interstate Technology and Regulatory Cooperation (ITRC) Work Group, InSitu Bioremediation Work Team, September 1, 1998

[\*Ground Water Issue: In-Situ Bioremediation of Contaminated Ground Water\*](#), U.S. EPA, EPA/540/S-92/003, February 1992

[\*Overview of In Situ Bioremediation of Chlorinated Ethene DNAPL Source Zones\*](#), The Interstate Technology and Regulatory Council (ITRC) Bioremediation of Dense Nonaqueous Phase Liquids (Bio DNAPL) Team, BIODNAPL-1, October 2005

[\*In Situ Bioremediation of Chlorinated Ethene: DNAPL Source Zones\*](#), The Interstate Technology & Regulatory Council (ITRC) Bioremediation of DNAPLs Team, BIODNAPL-3, June 2008

***Green and Sustainable Remediation***

U.S. EPA & Other Guidance

[\*Superfund Green Remediation\*](#), U.S. EPA webpage

[\*Superfund Green Remediation Strategy\*](#), U.S. EPA, September 2010

[\*Green and Sustainable Remediation: State of the Science and Practice\*](#), The Interstate Technology & Regulatory Council (ITRC) Green and Sustainable Remediation Team, GSR-1, May 2011

[\*Green and Sustainable Remediation: A Practical Framework\*](#), The Interstate Technology & Regulatory Council (ITRC) Green and Sustainable Remediation Team, GSR-2, May 2011



**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

**Ground Water Remediation/Restoration**

U.S. EPA & Other Guidance

[Guidance for Remedial Actions for Contaminated Ground Water at Superfund Sites](#), EPA/540/G-88/003, December 1988

[General Methods for Remedial Operation Performance Evaluations](#), U.S. EPA, EPA/600/R-92/002, January 1992

[Ground Water Issue: Chemical Enhancements to Pump-and-Treat Remediation](#), U.S. EPA, EPA/540/S-92/001, January 1992

[Considerations in Ground-Water Remediation at Superfund Sites and RCRA Facilities –Update](#), U.S. EPA, OWSER Directive No. 9283.1-06, May 27, 1992

[Guidance for Evaluating the Technical Impracticability of Ground Water Restoration \(Interim Final\)](#), U.S. EPA, EPA/540-R-93-080, OSWER Directive 9234.2-25, September 1993

[Methods for Monitoring Pump-and-Treat Performance](#), U.S. EPA, EPA/600/R-94/123, June 1994

[Pump-and-Treat Ground-Water Remediation: A Guide for Decision Makers and Practitioners](#), U.S. EPA, EPA/625/R-95/005, July 1996

[Presumptive Response Strategy and Ex-Situ Treatment Technologies for Contaminated Ground Water at CERCLA Sites \(Final Guidance\)](#), U.S. EPA 540/R-96/023, October 1996

[Use of Alternate Concentration Limits \(CLs\) in Superfund Cleanups](#), U.S. EPA, OSWER 9200.4-39, July 19, 2005

[Recommendations from the EPA Ground Water Task Force](#), U.S. EPA, EPA-500-R-07-001, December 2007

[Clarification of OSWER's 1995 Technical Impracticability Waiver Policy](#), OSWER Directive #9355.5-32, September 19, 2011

**Hazardous Waste Treatment and Stabilization/Solidification**

U.S. EPA & Other Guidance

[Handbook for Stabilization/Solidification of Hazardous Wastes](#), U.S. EPA, EPA/540/2-86/001, June 1986

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[\*A Compendium of Technologies Used in the Treatment of Hazardous Wastes\*](#), U.S. EPA, EPA/625/8-87/014, September 1987

[\*Stabilization/Solidification of CERCLA and RCRA Wastes - Physical Tests, Chemical Testing Procedures, Technology Screening and Field Activities\*](#), U.S. EPA, EPA/625/6-89/022, May 1989

***Incineration***

U.S. EPA & Other Guidance

[\*Hazardous Waste Combustion\*](#), U.S. EPA webpage

[\*Handbook - Guidance on Setting Permit Conditions and Reporting Trial Burn Results - Volume II of the Hazardous Waste Incineration Guidance Series\*](#), U.S. EPA, EPA/625/6-89/019, January 1989

[\*Handbook - Hazardous Waste Incineration Measurement Guidance Manual - Volume III of the Hazardous Waste Incineration Guidance Series\*](#), U.S. EPA, EPA/625/6-89/021, June 1989

[\*Handbook - Quality Assurance/Quality Control \(QA/QC\) Procedures for Hazardous Waste Incineration\*](#), U.S. EPA, EPA/625/6-89/023, January 1990

***In-Situ Chemical Oxidation***

U.S. EPA & Other Guidance

[\*Technical and Regulatory Guidance for In Situ Chemical Oxidation of Contaminated Soil and Groundwater \(Second Edition\)\*](#), The Interstate Technology & Regulatory Council (ITRC) In Situ Chemical Oxidation Team, January 2005

[\*In-Situ Chemical Oxidation – Engineering Issue\*](#), U.S. EPA, EPA/600/R-06/072, August 2006

***Non-Aqueous Phase Liquid (DNAPL, LNAPL) Remediation***

U.S. EPA & Other Guidance

[\*Evaluating Natural Source Zone Depletion at Sites with LNAPL\*](#), The Interstate Technology & Regulatory Council (ITRC) LNAPLs Team, LNAPL-1, April 2001

[\*DNAPL Source Reduction: Facing the Challenge\*](#), Interstate Technology & Regulatory Council (ITRC) Dense Nonaqueous Phase Liquids Team, DNAPLs-2, April 2002

## **Ohio EPA DERR Remedial Response Program General Guidance and Reference List for SOWs and Orders**

[Technical and Regulatory Guidance for Surfactant/Cosolvent Flushing of DNAPL Source Zones](#), The Interstate Technology & Regulatory Council (ITRC) Dense Nonaqueous Phase Liquids Team, DNAPLs-3, April 2003

[The DNAPL Remediation Challenge: Is There a Case for Source Depletion?](#), U.S. EPA, EPA/600/R-03/143, December 2003

[Strategies for Monitoring the Performance of DNAPL Source Zone Remedies](#), The Interstate Technology & Regulatory Council (ITRC) Dense Nonaqueous-Phase Liquids Team, DNAPLs-5, August 2004

[DNAPL Remediation: Selected Projects Where Regulatory Closure Goals Have Been Achieved](#), U.S. EPA, EPA 542/R-09/008, August 2006

[Evaluating LNAPL Remedial Technologies for Achieving Project Goals](#), The Interstate Technology & Regulatory Council (ITRC) LNAPLs Team, LNAPL-2, December 2009

[Integrated DNAPL Site Strategy](#), The Interstate Technology & Regulatory Council (ITRC) Integrated DNAPL Site Strategy Team, IDSS-1, November 2011

### **PCB Remediation**

#### U.S. EPA & Other Guidance

[Guidance on Remedial Actions for Superfund Sites with PCB Contamination](#), U.S. EPA, EPA/540/G-90/007, August 1990 (**Please note:** After EPA's Office of Solid Waste and Emergency Response issued "Guidance on Remedial Actions for Superfund Sites with PCB Contamination" OSWER Directive 9355.4-01 (August 1990), the Agency published a final rule under the Toxic Substances Control Act (TSCA) that amended existing regulations governing PCBs (see 40 CFR Part 761). The regulations are controlling legal authority and any policy discussion in the OSWER Directives that is not consistent with those regulations should be disregarded.)

[Engineering Issue: Technology Alternatives for the Remediation of PCB-Contaminated Soil and Sediment](#), U.S. EPA, EPA/540/S-93/506, October 1993

### **Permeable Reactive Barriers**

#### U.S. EPA & Other Guidance

[Interstate Technology & Regulatory Council, Permeable Reactive Barriers \(PRBs\) Documents and Training Courses](#)

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[Regulatory Guidance for Permeable Reactive Barriers Designed to Remediate Inorganic and Radionuclide Contamination](#), Interstate Technology and Regulatory Cooperation (ITRC) Work Group, Permeable Reactive Barriers Work Team, PRB-3, September 1999

[Regulatory Guidance for Permeable Barriers Designed to Remediate Chlorinated Solvents](#), Interstate Technology and Regulatory Cooperation (ITRC) Work Group, Permeable Reactive Barriers Work Group, Second Edition, PBW-1, December 1999

[Design Guidance for Application of Permeable Reactive Barriers for Groundwater Remediation \(Final\)](#), prepared by Battelle, Columbus, Ohio for the Air Force Research Laboratory, Tyndall Air Force Base, Florida, Contract No. F08637-95-D-6004, PBW-2, March 31, 2000

[Permeable Reactive Barrier: Technology Update](#), The Interstate Technology & Regulatory Council (ITRC), PRB: Technology Update Team, PRB-5, June 2011

**Phytoremediation**

U.S. EPA & Other Guidance

[Phytoremediation Resource Guide](#), U.S. EPA, EPA 542-B-99-003, June 1999

[Introduction to Phytoremediation](#), U.S. EPA, EPA/600/R-99/107, February 2000

[Ground Water Issue: Phytoremediation of Contaminated Soil and Ground Water at Hazardous Waste Sites](#), U.S. EPA, EPA/540/S-01/500, February 2001

**Sediment Remediation**

U.S. EPA & Other Guidance

[Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites](#), U.S. EPA, OSWER Directive 9285.6-08, February 12, 2000

[Contaminated Sediment Remediation Guidance for Hazardous Waste Sites](#), U.S. EPA, EPA-540-R-05-012, December 2005

[Contaminated Sediments Remediation – Remedy Selection for Contaminated Sediments](#), The Interstate Technology & Regulatory Council (ITRC) Contaminated Sediments Team, CS-2, August 2014

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

**Soil Remediation**

U.S. EPA & Other Guidance

[\*Handbook on In Situ Treatment of Hazardous Waste-Contaminated Soils\*](#), U.S. EPA, EPA/540/2-90/002, January 1990

[\*Technical and Regulatory Guidelines for Soil Washing \(Final\)\*](#), Interstate Technology and Regulatory Cooperation (ITRC) Work Group Metals in Soils Work Team, Soil Washing Project, December 1997

**Soil Vapor Extraction, Dual Phase Extraction, and Air Sparging**

U.S. EPA & Other Guidance

[\*Ground Water Issue – Evaluation of Soil Venting Application\*](#), U.S. EPA, EPA/540/S-92/004, April 1992

[\*Analysis of Selected Enhancements for Soil Vapor Extraction\*](#), U.S. EPA, EPA-542-R-97-007, September 1997

[\*Ground Water Issue: Steam Injection for Soil and Aquifer Remediation\*](#), U.S. EPA, EPA/540/S-97/505, January 1998

[\*Innovative Site Remediation Technology Design and Application, Volume 7: Vacuum Extraction and Air Sparging\*](#), U.S. EPA, WASTECH and the American Academy of Environmental Engineers, ISBN 1-883767-23-7 (also EPA 542-B-97-010), May 1998

[\*Soil Vapor Extraction and Bioventing – Engineering and Design\*](#), U.S. Army Corps of Engineers, Engineer Manual EM 1110-1-4001, June 2002

[\*Enhanced Attenuation Technologies: Passive Soil Vapor Extraction\*](#), prepared by GSI Environmental Inc. for the Savannah River National Laboratory, Aiken, South Carolina, SRNL-STI-2009-00571 (Rev. 1), March 2010

**Radioactive Site Remediation**

U.S. EPA & Other Guidance

[\*Assessment of Technologies for the Remediation of Radioactively Contaminated Superfund Sites\*](#), U.S. EPA, EPA/540/2-90/001, January 1990

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

***Thermal Desorption***

U.S. EPA & Other Guidance

*Technical Requirements for On-site Low Temperature Thermal Treatment of Non-Hazardous Soils Contaminated with Petroleum/Coal Tar/ Gas Plant Wastes (Final)*, The Interstate Technology and Regulatory Cooperation (ITRC) Low Temperature Thermal Desorption Work Team, Final, May 1996

*Ground Water Issue: How Heat Can Enhance In-situ Soil and Aquifer Remediation: Important Chemical Properties and Guidance on Choosing the Appropriate Technique*, U.S. EPA, EPA/540/S-97/502, April 1997

*Technical Requirements for On-Site Thermal Desorption of Solid Media Contaminated with Hazardous Chlorinated Solvents (Final)*, The Interstate Technology and Regulatory Cooperation (ITRC) Work Group, Low Temperature Thermal Desorption Work Team, September 1997

*Technical Guidelines for On-Site Thermal Desorption of Solid Media Contaminated and Low Level Mixed Waste Contaminated with Mercury and/or Hazardous Chlorinated Organics (Final)*, The Interstate Technology and Regulatory Cooperation (ITRC) Work Group, Low Temperature Thermal Desorption Work Team, September 1998

**Remedial Investigation/Feasibility Study (RI/FS) General Guidance**

Ohio EPA Guidance

*Generic Statement of Work for Conducting Remedial Investigation and Feasibility Studies*, Ohio EPA DERR, September 2006

U.S. EPA & Other Guidance

*Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (Interim Final)*, U.S. EPA, EPA/540/G-89/004, October 1988

*Getting Ready: Scoping the RI/FS*, U.S. EPA, CERCLA Orientation and RI/FS Training (#116): Module 4

*Scoper's Notes – An RI/FS Costing Guide, Bringing in a Quality RI/FS On Time and Within Budget*, U.S. EPA, EPA/540/G-90/002, February 1990

*A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, U.S. EPA and U.S. Army Corps of Engineers, U.S. EPA, EPA 540-R-00-002, July, 2000



**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

**RCRA Facility Investigation and Corrective Action**

U.S. EPA & Other Guidance

[\*Region 5 RCRA Corrective Action\*](#), U.S. EPA

[\*RCRA Policy and Guidance On-Line Resources\*](#), U.S. EPA

[\*RCRA Corrective Action Plan\*](#), U.S. EPA, OSWER Directive 9902.3-2A, May 1994

[\*RCRA Facility Investigation \(RFI\) Guidance \(Interim Final\), Volumes I –IV\*](#), U.S. EPA, EPA 530/SW-89-031, May 1989

[\*Fact Sheet #2, Expectation for Final Remedies at RCRA Corrective Action Facilities\*](#), U.S. EPA, March 2000

[\*Fact Sheet #3, Final Remedy Selection for Results-Based RCRA Corrective Action\*](#), U.S. EPA, March 2000

[\*RCRA Waste Sampling Draft Technical Guidance – Planning, Implementation, and Assessment\*](#), U.S. EPA, EPA 530-D-02-002, August 2002

[\*Guidance for Monitoring at Hazardous Waste Sites: Framework for Monitoring Plan Development and Implementation\*](#), U.S. EPA, OSWER Directive No. 9355.4-28, January 2004

[\*Handbook of Groundwater Protection and Cleanup Policies for RCRA Corrective Action\*](#), U.S. EPA, EPA530-R-04-030, April 2004

[\*Consistent Implementation of the FY 1993 Guidance on Technical Impracticability of Ground-Water Restoration at Superfund Sites\*](#), U.S. EPA, OSWER 9200.4-14, January 2005

[\*Risk Management Strategy for Corrective Action Projects, EPA Region 5 RCRA Program\*](#), U.S. EPA Region 5 Waste Pesticides, and Toxics Division, May 2005

[\*Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities \(Unified Guidance\)\*](#), U.S. EPA, EPA 530/R-09-007, March 2009

**Regional Screening Levels and Removal Management Levels**

Ohio EPA Guidance

[\*Use of U.S. EPA's Regional Screening Levels as Screening Values in Human Health Risk Assessments\*](#), Ohio EPA DERR, August 2009

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

U.S. EPA & Other Guidance

[\*Regional Screening Levels \(RSLs\)\*](#), U.S. EPA webpage

[\*Regional Removal Management Levels for Chemicals \(RMLs\)\*](#), U.S. EPA webpage

[\*Soil Screening Guidance: User's Guide, Second Edition\*](#), U.S. EPA, EPA/540/R-96/018, July 1996

[\*Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites\*](#), U.S. EPA, OSWER 9355.4-24, December 2002

[\*Guidance for Developing Ecological Soil Screening Levels\*](#), U.S. EPA, OSWER Directive 9285.7-55, November 2003 (Revised February 2005)

**Site Assessment (or Inspection), Sampling, Monitoring and Field Screening**

Ohio EPA Guidance

[\*Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring Programs\*](#), Ohio EPA Division of Drinking and Ground Waters

[\*Petroleum Contaminated Sites Guidance Document for Emergency Response Actions\*](#), Ohio EPA DERR, March 2005

U.S. EPA & Other Guidance

[\*Visual Sampling Plan \(Version 7.2\)\*](#), U.S. Department of Energy webpage

[\*Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA \(Interim Final\)\*](#), U.S. EPA, EPA/540/G-89/004, October 1988

[\*Superfund Ground Water Issue: Ground Water Sampling for Metals Analyses\*](#), U.S. EPA, EPA/540/4-89/001, March 1989

[\*A Rationale for the Assessment of Errors in the Sampling of Soils\*](#), U.S. EPA, EPA/600/4-90/013, July 1990

[\*Compendium of ERT Soil Sampling and Surface Geophysics Procedures\*](#), U.S. EPA, EPA/540/P-91/006, January 1991

[\*Guidance for Performing Preliminary Assessments Under CERCLA\*](#), U.S. EPA, EPA/540/G-91/013, September 1991

[\*Multi-Media Investigation Manual\*](#), U.S. EPA, EPA-330/9-89-003-R, Revised March 1992 (Note, this guidance document replaces SW-846 for field sampling protocol)

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[Guidance for Performing Site Inspections Under CERCLA \(Interim Final\)](#), U.S. EPA, EPA540-R-92-021, September 1992

[Hazard Ranking System Guidance Manual](#), U.S. EPA, EPA 540-R-92-026, November 1992

[Ground Water Issue: Low-Flow \(Minimal Drawdown\) Ground-Water Sampling Procedures](#), U.S. EPA, EPA/540/S-95/504, April 1996

[Multi-State Evaluation of An Expedited Site Characterization Technology: Site Characterization and Analysis Penetrometer System Laser-Induced Fluorescence \(SCAPS-LIF\)](#), Western Governors' Association DOIT Initiative, Interstate Technology and Regulatory Cooperation (ITRC) Work Group Cone Penetrometer Task Group Report, May 1996

[Chapter V: Direct Push Technologies, from Expedited Site Assessment Tools For Underground Storage Tank Sites: A Guide for Regulator](#), U.S.EPA, 510-B-97-001, March 1997

[Field Analytical and Site Characterization Technologies – Summary of Applications](#), U.S. EPA, EPA-542-R-97-011, November 1997

[Multi-State Evaluation of the Site Characterization and Analysis Penetrometer System Volatile Organic Compound \(SCAPS-VOC\) Sensing Technologies \(Final\)](#), The Interstate Technology and Regulatory Cooperation (ITRC) Accelerated Site Characterization Work Team, December 1997

[Requirements for the Preparation of Sampling and Analysis Plans](#), U.S. Army Corps of Engineers, Engineer Manual EM 200-1-3, February 2001

[Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual](#), U.S. EPA, EPA-823-B-01-002, October 2001

[Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers. Ground Water Forum Issue Paper](#), U.S. EPA, EPA 542-S-02-001, May 2002

[A Compendium of Chemical, Physical and Biological Methods for Assessing and Monitoring the Remediation of Contaminated Sediment Sites](#), U.S. EPA, EPA Contract No. 68-W-99-033, Work Assignment 4-20, prepared by Battelle Memorial Institute, February 2003

[Ground Water Sampling and Monitoring Using Direct Push Technologies](#), U.S. EPA, 540/R-04/005, August 2005

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[Field Portable X-Ray Fluorescence Spectrometry for the Determination of Elemental Concentrations in Soil and Sediment](#), U.S. EPA, SW-846 Method 6200, February 2007

[Incremental Sampling Methodology](#), The Interstate Technology & Regulatory Council Incremental Sampling Methodology Team, ISM-1, February 2012

[Ground Water Issue: Ground Water Sample Preservation at In-Situ Chemical Oxidation Sites – Recommended Guidelines](#), U.S. EPA, EPA/600/r-12/049, August 2012

**Treatability Studies**

U.S. EPA & Other Guidance

[Guide for Conducting Treatability Studies Under CERCLA: Aerobic Biodegradation Remedy Screening \(Interim Guidance\)](#), U.S. EPA, EPA/540 2-91 013A, July 1991

[Guide for Conducting Treatability Studies Under CERCLA: Soil Vapor Extraction \(Interim Guidance\)](#), U.S. EPA, EPA/540/2-91/019A, September 1991

[Guide for Conducting Treatability Studies Under CERCLA: Soil Washing \(Interim Guidance\)](#), U.S. EPA, EPA/540/2-91/020A, September 1991

[Guide for Conducting Treatability Studies Under CERCLA: Chemical Dehalogenation](#), U.S. EPA, EPA/540/R-92/013a, May 1992

[Guide for Conducting Treatability Studies under CERCLA: Thermal Desorption Remedy Selection \(Interim Guidance\)](#), U.S. EPA, EPA/540/R-92/074A, September 1992

[Guide for Conducting Treatability Studies Under CERCLA \(Final\)](#), U.S. EPA, EPA/540/R-92/071a, October 1992

[Guide for Conducting Treatability Studies Under CERCLA: Biodegradation Remedy Selection \(Interim Guidance\)](#), U.S. EPA, EPA/540/R-93/519a, August 1993

**Triad Approach** (*This intricate process is best utilized at fund-lead sites with technical assistance from U.S. EPA.*)

U.S. EPA & Other Guidance

[The Brownfields and Land Revitalization Technology Support Center](#), U.S. EPA, Argonne National Laboratory, and U.S. Army Corps of Engineers webpage

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[Triad Resource Center](#), U.S. EPA webpage

[Summary of the Triad Approach](#), U.S. EPA, Deana M. Crumbling, Office of Superfund Remediation and Technology Innovation, March 25, 2004

[Improving Sampling, Analysis and Data Management for Site Investigation and Cleanup](#), U.S. EPA, EPA-542-F-04-001a, April 2004

[Use of Dynamic Work Strategies Under a Triad Approach for Site Assessment and Cleanup – Technology Bulletin](#), U.S. EPA, EPA 542-F-05-008, September 2005

[Advancing Best Management Practices: Applying the Triad Approach in the Superfund Program](#), U.S. EPA, OSWER-9200.1-55, September 1, 2006

[Demonstrations of Method Applicability under a Triad Approach for Site Assessment and Cleanup - Technology Bulletin](#), U.S. EPA, EPA 524-F-08-006, August 2008.

[Triad Issue Paper: Using Geophysical Tools to Develop the Conceptual Site Model](#), U.S. EPA Office of Solid Waste and Emergency Response, 542-F-08-007, December 2008

[Best Management Practices: Use of Systematic Project Planning Under a Triad Approach for Site Assessment and Cleanup](#), U.S. EPA, EPA 542-F-10-010, September 2010

## **Vapor Intrusion**

### **Ohio EPA Guidance**

[Recommendations Regarding Response Action Levels and Timeframes for Common Contaminants of Concern at Vapor Intrusion Sites](#), Ohio EPA DERR, August 2016

[Sample Collection and Evaluation of Vapor Intrusion to Indoor Air for Remedial Response and Voluntary Action Programs \(Guidance Document\)](#), Ohio EPA DERR, May 2010 (**NOTE: this document is currently under revision, please refer to the documents under “Principal Vapor Intrusion Guidance: U.S. EPA” below.**)

### **Principal Vapor Intrusion Guidance: U.S. EPA**

[Vapor Intrusion: EPA Technical Guidance and Tools Prepared to Support Guidance Development](#), U.S. EPA webpage

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air](#), U.S. EPA, Publication OWSER 9200.2-154, June 2015

[Technical Guide for Addressing Petroleum Vapor Intrusion at Leaking Underground Storage Tank Sites](#), U.S. EPA, EPA 510-R-15-001, June 2015  
[Vapor Intrusion Screening Levels \(VISL\) Calculator](#) and [User's Guide](#), U.S. EPA, May 2014

**Supporting Vapor Intrusion Guidance: U.S. EPA & Other**

[Petroleum Vapor Intrusion: Fundamentals of Screening, Investigation, and Management](#), Interstate Technology & Regulatory Council (ITRC) webpage

[Vapor Intrusion Pathway: A Practical Guideline](#), Interstate Technology & Regulatory Council (ITRC) Vapor Intrusion Team, January 2007

[Vapor Intrusion Pathway: Investigative Approaches for Typical Scenarios \(A Supplement to Vapor Intrusion Pathway: A Practical Guideline\)](#), Interstate Technology & Regulatory Council (ITRC) Vapor Intrusion Team, January 2007

[Indoor Air Vapor Intrusion Mitigation Approaches](#), U.S. EPA, EPA/600/R-08-115, October 2008

[Background Indoor Air Concentrations of Volatile Organic Compounds in North American Residences \(1990-2005\): A Compilation of Statistics for Assessing Vapor Intrusion](#), U.S. EPA, EPA 530-R-10-001, June 2011

[Conceptual Site Model Scenarios for the Vapor Intrusion Pathway](#), U.S. EPA, EPA 530-R-10-003, February 2012

[EPA's Vapor Intrusion Database: Evaluation and Characterization of Attenuation Factors for Chlorinated Volatile Organic Compounds and Residential Buildings](#), U.S. EPA, EPA 530-R-10-002, March 2012

[3-D Modeling of Aerobic Biodegradation of Petroleum Vapors: Effect of Building Area Size On Oxygen Concentration Below the Slab](#), U.S. EPA, EPA 510-R-13-002, June 2013

[Petroleum Vapor Intrusion – Fundamentals of Screening, Investigation, and Management](#), Interstate Technology & Regulatory Council (ITRC) Petroleum Vapor Intrusion (PVI) Team, October 2014



**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

**Waste Management and Site Decontamination/Control**

Ohio EPA Guidance

[\*Closure Plan Review Guidance for RCRA Facilities\*](#), Ohio EPA Division of Hazardous Waste Management, October 2009

U.S. EPA & Other Guidance

[\*Guide for Decontaminating Buildings, Structures, and Equipment at Superfund Sites\*](#), U.S. EPA, EPA/600/2-85/028, March 1985

[\*Handbook - Dust Control at Hazardous Waste Sites\*](#), U.S. EPA, EPA/540/2-85/003, November 1985

[\*Management of Remediation Waste Under RCRA\*](#), U.S. EPA, EPA530-F-98-026, October 1998

**Water Quality Standards**

Ohio EPA Guidance

[\*Biological Criteria for the Protection of Aquatic Life\*](#), Ohio EPA Division of Surface Water webpage

[\*Biological Criteria for the Protection of Aquatic Life: Volume I: The Role of Biological Data in Water Quality Assessment\*](#), Ohio EPA Division of Surface Water, July 1987 (updated February 1988)

[\*Biological Criteria for the Protection of Aquatic Life: Volume II: User's Manual for Biological Field Assessment of Ohio Surface Waters\*](#), Ohio EPA Division of Surface Water, October 1987 (updated January 1988); [\*2014 Volume II Updates\*](#) (replaces 2013 updates), [\*Volume II References\*](#), and [\*Addendum to Volume II\*](#)

[\*Addendum to Biological Criteria for the Protection of Aquatic Life: Volume II: User's Manual for Biological Field Assessment of Ohio Surface Waters\*](#), Ohio EPA Division of Surface Water, September 1989 (updated January 1988)

[\*Biological Criteria for the Protection of Aquatic Life: Volume III: Standardized Biological Field Sampling and Laboratory Methods for Assessing Fish and Macroinvertebrate Communities\*](#), Ohio EPA Division of Surface Water, First Update, September 1989; [\*2014 Volume III Updates\*](#) (replaces 2013 updates)

U.S. EPA & Other Guidance

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[\*The Water Quality Standards Handbook, Second Edition\*](#), 2014 Update, U.S. EPA

**Wetland Delineation/Restoration and Stream Restoration**

Ohio EPA Guidance

[\*The Qualitative Habitat Evaluation Index \[QHEI\]: Rationale, Methods, and Application\*](#), Ohio EPA Division of Surface Water, November 1989

[\*Ohio Rapid Assessment for Wetlands Version 5.0 \(Final\)\*](#), Ohio EPA Division of Surface Water, February 2001

[\*Integrated Wetland Assessment Program, Part 4: Vegetation Index of Biotic Integrity \(VIBI\) and Tiered Aquatic Life Uses \(TALUs\) for Ohio Wetlands\*](#), Ohio Environmental Protection Agency Division of Surface Water Wetland Ecology Group, Ohio EPA Technical Report WET/2004-4, 2004

[\*Integrated Wetland Assessment Program, Part 5: Biogeochemical and Hydrological Investigations of Natural and Mitigation Wetlands\*](#), Ohio Environmental Protection Agency Division of Surface Water Wetland Ecology Group, Ohio EPA Technical Report WET/2004-5, 2004

[\*Integrated Wetland Assessment Program, Part 6: Standardized Monitoring Protocols and Performance Standards for Wetland Creation, Enhancement and Restoration, Version 1.0\*](#), Ohio Environmental Protection Agency Division of Surface Water Wetland Ecology Group, Ohio EPA Technical Report WET/2004-6, 2004

[\*Integrated Wetland Assessment Program, Part 7: Amphibian Index of Biotic Integrity \(AmphIBI\) for Ohio Wetlands\*](#), Ohio Environmental Protection Agency Division of Surface Water Wetland Ecology Group, Ohio EPA Technical Report WET/2004-7, 2004

[\*Integrated Wetland Assessment Program, Part 9: Field Manual for the Vegetation Index of Biotic Integrity for Wetlands, v 1.4\*](#), Ohio Environmental Protection Agency Division of Surface Water Wetland Ecology Group, Ohio EPA Technical Report WET/2007-6, 2007

U.S. EPA & Other Guidance

[\*Wetlands\*](#), U.S. EPA webpage (includes information on Clean Water Act Section 404 regulations and federal, state and local government programs)

[\*Corps of Engineers Wetlands Delineation Manual \(Final Report\)\*](#), U.S. Army Corps of Engineers, Wetlands Research Program Technical Report Y-87-1, January 1987

**Ohio EPA DERR Remedial Response Program  
General Guidance and Reference List for SOWs and Orders**

[National Guidance Water Quality Standards for Wetlands](#), U.S. EPA, Appendix D of the Water Quality Standard Handbook: Second Edition, August 1994

[Treatment Wetlands](#), Robert H. Kadlec and Robert L. Knight, CRCX Lewis Publishers, ISBN 0-87371-930-1, 1996

[Guiding Principles for Constructed Treatment Wetlands: Providing for Water Quality and Wildlife Habitat](#), U.S. EPA, EPA 843-B-00-003, October 2000

[Channel Restoration Design for Meandering Rivers](#), P.J. Soar and C.R. Thorne, U.S. Army Corps of Engineers, ERDC/CHL CR-01-1, September 2001

[Hydraulic Design of Stream Restoration Projects](#), R.R. Copeland, D. N. McComas, C.R. Thorne, P.J. Soar, M.M. Jonas and J.B. Fripp, U.S. Army Corps of Engineers, ERDC/CHL TR-01-28, September 2001

# Appendix E

## Environmental Covenant Template

**To be recorded with Deed  
Records - ORC § 317.08**

## **ENVIRONMENTAL COVENANT**

This Environmental Covenant is entered into by [*name all Owners of the Property and Holders*] and the Ohio Environmental Protection Agency ("Ohio EPA") pursuant to Ohio Revised Code ("ORC") §§ 5301.80 to 5301.92 for the purpose of subjecting the Property described herein ("the Property") to the activity and use limitations set forth herein.

This Environmental Covenant requires current and future Property owners to meet certain requirements, including, but not limited to:

- Comply with the activity and use limitations given by paragraph 5 that: [*Plain language summary of the activity and use limitations in paragraph 5*].
- Provide an annual compliance report to Ohio EPA by [*enter Day Month*] of each year, as required by paragraph 9, describing that the Property continues to be used in compliance with the activity and use limitations.
- Give notice to new property owners (also known as "transferees") upon conveyance, as required by paragraph 10, of the activity and use limitations and the recorded location of this Environmental Covenant.
- Notify Ohio EPA within 10 days of each conveyance, as required by paragraph 10, of the property that was conveyed and new owner's contact information.

WHEREAS, the Property is owned by [*name of Owner*], who resides or is located at [*address or location of owner*].

WHEREAS, the remedy for the Property includes the activity and use limitations set forth in this Environmental Covenant.

WHEREAS, the activity and use limitations protect against exposure to the [*hazardous substances / petroleum / hazardous substances and petroleum*] in [*soil / ground water / soil and ground water, or describe other affected media*] on or underlying the Property.

[*WHEREAS, the Property is the subject to an operation and maintenance (O&M) agreement that provides for a central management entity to oversee engineering controls to maintain site protectiveness.*]

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Now therefore, [name of each Owner and Holder other than Owner, if any] and Ohio EPA agree to the following:

1. Environmental Covenant. This instrument is an environmental covenant developed and executed pursuant to ORC §§ 5301.80 to 5301.92.

2. Property. This Environmental Covenant concerns an approximately \_\_\_\_\_-acre tract of real property located at [Address of Property], in [County], Ohio, and more particularly described in [Attachment #] attached hereto and incorporated by reference herein ("Property").

3. Owner. This Property is owned by [Owner Name] ("Owner"), [with a place of business located] at [Address of Owner].

4. Holder. Pursuant to ORC § 5301.81, the holder of this Environmental Covenant ("Holder") is the Owner listed above [and if applicable [Name of other Holder not the Owner], [with place of business located] at [Address of other Holder]].

5. Activity and Use Limitations. As part of the remedial action described in the Decision Document, Owner[s] hereby impose[s] and agree[s] to comply with the following activity and use limitations: *[Determine the activity and use limitations appropriate for the Property. Several types of restrictions may be appropriate as part of a remedial action, interim action, or closure plan where cleanup to an unrestricted land use is infeasible. These include: land use restrictions; ground water restrictions; disturbance restrictions; and construction restrictions. Each type of restriction must be considered on a site-specific basis to determine which restriction or combination of restrictions is suitable for the particular circumstances of the site or facility. Evaluate the possible use restrictions based on the nature of contamination, the type of affected media and the potential exposures. The restriction categories include: land use, ground water, disturbance and construction.]*

6. Running with the Land. This Environmental Covenant shall be binding upon the Owner, during the time that the Owner owns the Property or any portion thereof, and upon all assigns and successors in interest, including any Transferee, and shall run with the land, pursuant to ORC § 5301.85, subject to amendment or termination as set forth herein. The term "Transferee," as used in this Environmental Covenant, shall mean any future owner of any interest in the Property or any portion thereof, including, but not limited to, owners of an interest in fee simple, mortgagees, easement holders, and/or lessees.



7. Compliance Enforcement. Compliance with this Environmental Covenant may be enforced pursuant to ORC § 5301.91 and other applicable law. Failure to timely enforce compliance with this Environmental Covenant or the activity and use limitations contained herein by any party shall not bar subsequent enforcement by such party and shall not be deemed a waiver of the party's right to take action to enforce against any non-compliance. Nothing in this Environmental Covenant shall restrict the Director of Ohio EPA from exercising any authority under applicable law.

8. Rights of Access. Owner hereby grants to Ohio EPA's authorized representatives [*include, as applicable, name of local government and any Holders other than Owner, etc.; see ORC §§ 5301.82(A)(6) and 5301.91(A)*] the right of access to the Property for implementation or enforcement of this Environmental Covenant and shall require such access as a condition of any transfer of the Property or any portion thereof.

9. Compliance Reporting. Owner or Transferee, if applicable, shall annually submit to Ohio EPA [*include, as applicable, name of local government, any "Holders" other than Owner*] written documentation verifying that the activity and use limitations set forth herein remain in place and are being complied with. Documentation shall be due to Ohio EPA on July 1<sup>st</sup> of each year beginning the year after the effective date of this Environmental Covenant, unless otherwise directed by Ohio EPA.

10. Notice upon Conveyance. Each instrument hereafter conveying any interest in the Property or any portion thereof shall contain a notice of the activity and use limitations set forth in this Environmental Covenant, and provide the recorded location of this Environmental Covenant. The notice shall be substantially in the following form:

THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL COVENANT, RECORDED IN THE DEED OR OFFICIAL RECORDS OF [name of County Recorder's Office] ON \_\_\_\_\_, 201\_\_, IN [DOCUMENT \_\_\_\_\_, or BOOK\_\_\_\_, PAGE \_\_\_\_]. THE ENVIRONMENTAL COVENANT CONTAINS THE FOLLOWING ACTIVITY AND USE LIMITATIONS:

*[List or summarize the type of activity and use limitations in Paragraph 5 of the environmental covenant (i.e., a limitation to commercial or industrial land uses, a prohibition on ground water extraction and use, and a limitation on building occupancy – remedy or demonstration obligation).]*

Owner or Transferee, if applicable, shall notify Ohio EPA [*and "Holders" other than the Owner, if any*] within [*ten (10)*] days after each conveyance of an interest in the

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Property or any portion thereof. The notice shall include the name, address, and telephone number of the Transferee, a copy of the deed or other documentation evidencing the conveyance, and a survey map that shows the boundaries of the property being transferred.

11. Representations and Warranties. Owner hereby represents and warrants to the other signatories hereto:

- A. that the Owner is the sole owner of the Property;
- B. that the Owner holds fee simple title to the Property and that the Owner conducted a current title search that shows that the Property [*choose one: is subject to [or] is not subject to any*] interests or encumbrances that conflict with the activity and use limitations set forth in this Environmental Covenant;

*[If other interests or encumbrances on the Property conflict with the activity and use limitations set forth in this Environmental Covenant, add the following provision as a separate subparagraph:*

*To the extent that any other interests in or encumbrances on the Property conflict with the activity and use limitations set forth in this Environmental Covenant, the persons who own such interests or hold such encumbrances have agreed to subordinate such interests or encumbrances to the Environmental Covenant, pursuant to ORC § 5301.86, and the subordination agreement(s) (attached as [Attachment #] to this Environmental Covenant; [or] recorded at [name of County Recorder's Office].)]*

- C. that the Owner has the power and authority to enter into this Environmental Covenant, to grant the rights and interests herein provided and to carry out all obligations hereunder;
- D. that this Environmental Covenant will not materially violate or contravene or constitute a material default under any other agreement, document or instrument to which Owner is a party or by which Owner may be bound or affected;

- E. that the Owner has identified all other persons that own an interest in or hold an encumbrance on the Property, and, if applicable, notified such persons of the Owner's intention to enter into this Environmental Covenant.

12. Amendment or Termination. This Environmental Covenant may be amended or terminated by consent of all of the following: the Owner, or a Transferee, if applicable; [*“Holders” other than Owner, if any;*] and the Director of the Ohio EPA, pursuant to ORC §§ 5301.82 and 5301.90 and other applicable law. The term, “Amendment,” as used in this Environmental Covenant, shall mean any changes to the Environmental Covenant, including the activity and use limitations set forth herein, or the elimination of one or more activity and use limitations so long as there is at least one limitation remaining. The term, “Termination,” as used in this Environmental Covenant, shall mean the elimination of all activity and use limitations set forth herein and all other obligations under this Environmental Covenant.

This Environmental Covenant may be amended or terminated only by a written instrument duly executed by the Director of Ohio EPA and by the Owner or Transferee, if applicable, of the Property or any portion thereof [, *and “Holders” or their assignees, if any*]. Within thirty (30) days of signature by all requisite parties on any amendment or termination of this Environmental Covenant, the Owner or Transferee, if applicable, shall file such instrument for recording with the [*name of County Recorder’s Office*], and shall provide a file- and date-stamped copy of the recorded instrument to Ohio EPA [*and “Holders” or their assignees, if any*].

13. Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

14. Governing Law. This Environmental Covenant shall be governed by and interpreted in accordance with the laws of the State of Ohio.

15. Recordation. Within [*thirty (30)*] days after the date of the final required signature, Owner shall file this Environmental Covenant for recording, in the same manner as a deed to the Property, with the [*name of County Recorder’s Office*].

16. Effective Date. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded as a deed record for the Property with the [*name of County Recorder’s Office*].

17. Distribution of Environmental Covenant. Owner shall distribute a file- and date-stamped copy of the recorded Environmental Covenant to: Ohio EPA [, *include name other parties to the Environmental Covenant, if any*] and [*include the appropriate governmental entity applicable to property: City / County / Township*].

18. Notice. Unless otherwise notified in writing by any party hereto or Ohio EPA, any document or communication required by this Environmental Covenant shall be submitted to:

As to Ohio EPA:

Ohio EPA – Central Office  
Division of Environmental Response and Revitalization  
50 West Town Street  
Columbus, Ohio 43216  
Attn.: DERR Records Management Officer

Or, send electronically to: [records@epa.ohio.gov](mailto:records@epa.ohio.gov)

And

Ohio EPA - [applicable district office]  
[District office address]  
Attn.: DERR Site Coordinator for [*Site Name*]

As to Owner:

[Name, title, or position]  
[Address]

[As to Holder:]

[Name, title, or position]  
[Address]

The undersigned represents and certifies that the undersigned is authorized to execute this Environmental Covenant.

Notary Public

Notary Public



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*[EC Template, May 2018]*

**OHIO ENVIRONMENTAL PROTECTION AGENCY**

\_\_\_\_\_  
Laurie A. Stevenson, Director

State of Ohio                    )  
  )       ss:  
County of Franklin            )

Before me, a notary public, in and for Franklin County, Ohio, personally appeared Laurie A. Stevenson, the Director of Ohio EPA, who acknowledged to me that she did execute the foregoing instrument on behalf of Ohio EPA.

IN TESTIMONY WHEREOF, I have subscribed my name and affixed my official seal this \_\_\_\_\_ day of \_\_\_\_\_, 202\_\_.

\_\_\_\_\_  
Notary Public

# Appendix F

## Financial Guarantees

### Appendix F: Financial Assurance Information Schedule

The Performing Defendant submits the following information for use in the financial test used in lieu of financial assurance as provided in Section XXIII of the Consent Decree. The Performing Defendant may choose to submit the information in Alternative I, or the information in Alternative II, or both.

#### Alternative I

1. Sum of Current Revised Cost Estimate and any other guaranteed remedial action and operation and maintenance costs \$ \_\_\_\_\_
2. Total liabilities [if any portion of the Current Revised Cost Estimate is included in total liabilities, you may deduct the amount of that portion from this line and add that amount to lines 3 and 4] \$ \_\_\_\_\_
3. Tangible net worth \$ \_\_\_\_\_
4. Net worth \$ \_\_\_\_\_
5. Current assets \$ \_\_\_\_\_
6. Current liabilities \$ \_\_\_\_\_
7. Net working capital [line 5 minus line 6] \$ \_\_\_\_\_
8. The sum of net income plus depreciation, depletion, and amortization \$ \_\_\_\_\_
9. Total assets in U.S. [required only if less than 90% of firm's assets are located in the U.S.] \$ \_\_\_\_\_
10. Is line 3 at least \$10 million? \_\_\_\_\_
11. Is line 3 at least 6 times line 1? \_\_\_\_\_
12. Is line 7 at least 6 times line 1? \_\_\_\_\_
13. Are at least 90% of firm's assets located in the U.S.? If not, complete line 14. \_\_\_\_\_
14. Is line 9 at least 6 times line 1? \_\_\_\_\_
15. Is line 2 divided by line 4 less than 2.0 ? \_\_\_\_\_
16. Is line 8 divided by line 2 greater than 0.1 ? \_\_\_\_\_
17. Is line 5 divided by line 6 greater than 1.5 ? \_\_\_\_\_

**Alternative II**

1. Sum of Current Revised Cost Estimate and any other guaranteed remedial action and operation and maintenance costs \$ \_\_\_\_\_
2. Current bond rating of most recent issuance of this firm and name of rating service \_\_\_\_\_
3. Date of issuance of bond \_\_\_\_\_
4. Date of maturity of bond \_\_\_\_\_
5. Tangible net worth [if any portion of the Current Revised Cost Estimate is included in “total liabilities” on your firm’s financial statements, you may add the amount of that portion to this line] \$ \_\_\_\_\_
6. Total assets in U.S. [required only if less than 90% of firm’s assets are located in the U.S.] \$ \_\_\_\_\_
7. Is line 5 at least \$10 million? \_\_\_\_\_
8. Is line 5 at least 6 times line 1? \_\_\_\_\_
9. Are at least 90% of firm’s assets located in the U.S.? If not, complete line 10. \_\_\_\_\_
10. Is line 6 at least 6 times line 1? \_\_\_\_\_